JSM2018

Vancouver, British Columbia, Canada

The content in this book is accurate as of July 11, 2018

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General Program

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Session Tag Descriptions

We expect both theme and applied sessions to draw a diverse audience.

● THEME

JSM theme sessions are directly relevant to the JSM 2018 theme, #LeadWithStatistics. Theme sessions are designed to expand the frontiers of statistical thought, emphasize new directions, and promote interdisciplinary collaboration.

■ APPLIED

JSM applied sessions have applications at the heart of the presentations. Because these sessions are grounded in applications across many areas of science and engineering, they may involve interdisciplinary work and include presentations by nonstatisticians. Applied sessions vary in scope, ranging from presentations on state-of-the-art statistical methodology applied to real-world problems to those that are tutorial in nature.

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

SUNDAY JULY 29

Special Presentation 2:00 p.m.—3:50 p.m.

2 CC-West Ballroom A

Introductory Overview Lecture: The Deep Learning Revolution—Invited

JSM Partner Societies

Organizer(s): Ryan Tibshirani, Carnegie Mellon University

Chair(s): Zaid Harchaoui, University of Washington

2:05 p.m. A Four-Part Introduction to Deep Learning—✦Christopher Manning, Stanford University; ✦Ruslan Salakhutdinov, Carnegie Mellon University

3:40 p.m. Floor Discussion

Invited Sessions 2:00 p.m.—3:50 p.m.

3 CC-West 301

■ ● **Remembering Stephen E. Fienberg—Invited**

Memorial, Social Statistics Section, History of Statistics Interest Group, Survey Research Methods Section

Organizer(s): Alicia Carriquiry, Iowa State University; Asaph Young Chun, US Census Bureau

Chair(s): Amanda Luby, Carnegie Mellon University

2:05 p.m. Statistical Data Protection Needs Statisticians—✦Aleksandra Slavkovic, Pennsylvania State University

2:20 p.m. The Role of Statistics in Improving Forensic Science—✦Hal Stern, University of California, Irvine

2:35 p.m. Disc: William Eddy, Carnegie Mellon University

2:50 p.m. Disc: Alicia Carriquiry, Iowa State University

3:05 p.m. Disc: Maria Cuellar, Carnegie Mellon University

3:20 p.m. Floor Discussion

4 CC-East 16

■ **Transparency, Reproducibility and Replicability in Work with Social and Economic Data—Invited**

Government Statistics Section, Social Statistics Section, Survey Research Methods Section, Section on Statistical Computing

Organizer(s): Mike L. Cohen, Committee on National Statistics

Chair(s): Mike L. Cohen, Committee on National Statistics

2:05 p.m. Framing Reproducibility Issues in Computationally- and Data-Enabled Research?—✦Victoria Stodden, University of Illinois

2:30 p.m. Transparency, Reproducibility, and Replicability—✦Margaret Levenstein, Inter-university Consortium for Political and Social Research

2:55 p.m. Enhancement of Transparency, Reproducibility, and Replicability in the Integration of Multiple Data Sources—✦John L. Eltinge, United States Census Bureau

3:20 p.m. Disc: Emilda Rivers, National Center for Science and Engineering Statistics, NSF

3:45 p.m. Floor Discussion

5 CC-East 19

■ ● **Strategic Planning and Vision Building for the Statistics Profession: Are Existing Databases Underutilized?—Invited**

Social Statistics Section, IMS, Conference Board of the Mathematical Sciences, SSC

Organizer(s): Amanda L. Golbeck, University of Arkansas for Medical Sciences

Chair(s): Roy E. Welsch, Massachusetts Institute of Technology

2:05 p.m. Seeing the Big Picture in, and Having More Influence on, the Statistics Profession from Your Vantage Point—✦Amanda L. Golbeck, University of Arkansas for Medical Sciences

2:30 p.m. Leading Toward Evidence-Based Educational Improvement Using the CBMS Survey—✦Ellen E. Kirkman, Wake Forest University

2:55 p.m. Stats on Stats: Statistical Sciences in the Annual Survey of the Mathematical Sciences—✦Thomas Harold Barr, American Mathematical Society

3:20 p.m. Disc: Sally C. Morton, Virginia Tech

3:45 p.m. Floor Discussion

6 CC-West 121

■ ● **Recent Advance of Nonparametric and Semiparametric Techniques with Complex Data Structure—Invited**

Section on Nonparametric Statistics, ENAR, Biometrics Section, SSC

Organizer(s): Jiwei Zhao, State University of New York At Buffalo

Chair(s): Jiwei Zhao, State University of New York At Buffalo

2:05 p.m. Semiparametric Regression Analysis of Multiple Right- and Interval-Censored Events—Fei Gao, University of Washington; ✦Donglin Zeng, UNC Chapel Hill; Danyu Lin, University of North Carolina

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

2:25 p.m. Quantile-Optimal Treatment Regimes—✦Lan Wang, University of Minnesota; Yu Zhou, University of Minnesota; Rui Song, North Carolina State University; Ben Sherwood, University of Kansas

2:45 p.m. Semiparametric Theory for Causal Inference with Negative Controls—✦Xu Shi, Harvard University; Wang Miao, Peking University; Eric Tchetgen Tchetgen, The Wharton School at the University of Pennsylvania

3:05 p.m. A Profile Likelihood Approach to Semiparametric Estimation with Nonignorable Nonresponse—✦Jae-kwang Kim, Iowa State University; Kosuke Morikawa, Osaka University ; Hejian Sang, Iowa State University

3:25 p.m. Optimal Pseudolikelihood Estimation in Multivariate Missing Data with Nonignorable Nonresponse—Jiwei Zhao, State University of New York At Buffalo; ✦Yanyuan Ma, Penn State University

3:45 p.m. Floor Discussion

SUNDAY

7 CC-West 110

● Bayesian Nonparametrics in Causal Inference—Invited

Section on Bayesian Statistical Science, Biometrics Section, ENAR

Organizer(s): Chanmin Kim, Boston University School of Public Health

Chair(s): Corwin Zigler, Harvard T.H. Chan School of Public Health

2:05 p.m. A Bayesian Nonparametric Approach for Causal Inference with Semi-Competing Risks—✦Michael Daniels, University of Florida; Peter M¸ller, University of Texas Austin; Yanxun Xu, Johns Hopkins University; Daniel Scharfstein, Johns Hopkins University

2:25 p.m. Regularization and Aliasing in the Estimation of Treatment Effect Moderation—✦Paul Richard Hahn, Arizona State University ; Carlos Carvalho, University of Texas; Jared S Murray, University of Texas at Austin

2:45 p.m. Bayesian Population Finding Using Counterfactual Modeling of Responses—✦Peter M¸ller, University of Texas Austin; Satoshi Morita, Kyoto University

3:05 p.m. Causal Inference for Outcomes Partially Identified by Longitudinal Laboratory Measures from EHRs—Jason Roy, University of Pennsylvania; ✦Bret Zeldow, University of Pennslyvania

3:25 p.m. Bayesian Longitudinal Causal Inference in the Analysis of the Public Health Impact of Air Pollution—✦Chanmin Kim, Boston University School of Public Health; Corwin Zigler, Harvard T.H. Chan School of Public Health; Jason Roy, University of Pennsylvania; Michael Daniels, University of Florida

3:45 p.m. Floor Discussion

8 CC-West 120

■ ● Computational Methods and Bayesian Inference for Networks—Invited

Council of Chapters

Organizer(s): Liangliang Wang, Simon Fraser University

Chair(s): Jiguo Cao, Simon Fraser University

2:05 p.m. Model Calibration of a Protein-Signaling Network—✦Derek Bingham, Simon Fraser University; David Alexander Campbell, Simon Fraser University; David C. Clarke, Simon Fraser University; Mike Grosskopf, Simon Fraser University; Luyao Lin, Simon Fraser University; Biljana Jonoska Stojkova , University of British Columbia

2:25 p.m. High-Dimensional MCMC Diagnostics with Application to Spatial Text Clustering of Beer Flavours—✦David Alexander Campbell, Simon Fraser University; Subhash Lele, University of Alberta; Peter Solymos, Alberta Biodiversity Monitoring

2:45 p.m. Bayesian Inference for Phylogenetic Trees and Networks—✦Liangliang Wang, Simon Fraser University; Shijia Wang, Simon Fraser University; Alexandre Bouchard-CÙté, University of British Columbia

3:05 p.m. A Bayesian Nonparametric Model for Community Discovery on the Bitcoin Transaction Network—✦Creagh Briercliffe, University of British Columbia; Alexandre Bouchard-CÙté, University of British Columbia; Paul Gustafson, University of British Columbia

3:25 p.m. Disc: Camila P. E. de Souza, BC Cancer Agency Research Centre

3:45 p.m. Floor Discussion

9 CC-West 202

■ ● Data Science Education - Successes and Challenges: Stories from the Classroom and Beyond—Invited

Journal of Statistics Education, Business Analytics/Statistics Education Interest Group

Organizer(s): Soma Roy, Cal Poly, San Luis Obispo

Chair(s): Amy Wagler, The University of Texas at El Paso

2:05 p.m. Teaching Students to Think About Data Representation—✦Dennis L Sun, Cal Poly and Google

2:25 p.m. An Interdisciplinary Approach to Data Science Education—✦Galin Jones, University of Minnesota

2:45 p.m. Scaling a Data Science Curriculum to the Masses: Success and Failures in the Undergraduate Classroom—✦Thomas Fisher, Miami University

3:05 p.m. Data Science: a Recent Graduate's 'Reverse Engineered' Perspective—✦Kelsey Warsinske, DePauw University, Miami University, Facebook

3:25 p.m. Disc: Nicholas J. Horton, Amherst College

3:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

10 CC-West 122

■ ● State Space Assessment Models for Complex Fisheries and Biological Data—Invited

Canadian Statistical Sciences Institute, SSC

Organizer(s): Joanna Mills Flemming, Dalhousie University

Chair(s): William H Aeberhard, Dalhousie University

2:05 p.m. State-Space Modeling Applications in Fisheries Science and Management—✦Sean Patrick Cox, Simon Fraser University

2:30 p.m. Non-Standard Model Building and Model Validation Examplified by Fish Stock Assessment—✦Anders Nielsen, Technical University of Denmark

2:55 p.m. Statistical Modeling of Animal Movement—✦Louis-Paul Rivest, Université Laval

3:20 p.m. Floor Discussion

11 CC-West 206/207

■ ● Daunting Challenges and Innovative Solutions for Big Data Analysis—Invited

Section on Statistical Computing, Caucus for Women in Statistics, Section on Statistical Learning and Data Science, SSC, Social Statistics Section

Organizer(s): Nusrat Jahan, James Madison University

Chair(s): Nusrat Jahan, James Madison University

2:05 p.m. Spatially Informed Variable Selection Priors and Application to Neuroimaging Data—✦Marina Vannucci, Rice University

2:30 p.m. Analysis and Visualization for Large-Scale Scientific Simulations—✦Joanne R. Wendelberger, Los Alamos National Laboratory; Divya Banesh, Los Alamos National Laboratory; James Ahrens, Los Alamos National Laboratory

2:55 p.m. Nonparametric Empirical Bayes Methods for High Dimension Problems†—✦Linda Zhao, University of Pennsylvania; Junhui Cai, University of Pennsylvania

3:20 p.m. Data-Driven Regularization and Priors in GWAS and Mediation Analysis—✦Sunduz Keles, University of Wisconsin, Madison

3:45 p.m. Floor Discussion

12 CC-West 224

■ ● Novel Statistical Methods for Analyzing Electronic Health Records and Biobank Data—Invited

WNAR, International Chinese Statistical Association, ENAR

Organizer(s): Ran Tao, Vanderbilt University Medical Center

Chair(s): Ran Tao, Vanderbilt University Medical Center

2:05 p.m. Retrospective Study Designs for Longitudinal Data Obtained from a Biobank-Linked Electronic Medical Record—✦Jonathan Schildcrout, Vanderbilt University Medical Center

2:30 p.m. Efficiently Controlling for Unbalanced Case-Control Ratios and Sample Relatedness for Binary Traits in PheWAS by Large Cohorts—✦Seunggeun Lee, University of Michigan

2:55 p.m. Scalable Methods for Association Analysis in Biobank Scale Data Sets—✦Dajiang Liu, Penn State College of Medicine

3:20 p.m. Enabling Phenotypic Big Data with PheNorm—✦Sheng Yu, Tsinghua University; Yumeng Ma, Tsinghua University; Jessica Gronsbell, Harvard T.H. Chan School of Public Health; Tianrun Cai, Brigham and Women's Hospital; Ashwin Ananthakrishnan, Massachusetts General Hospital; Vivian Gainer, Partners HealthCare; Susanne Churchill, Harvard Medical School; Peter Szolovits, Massachusetts Institute of Technology; Shawn Murphy, Partners HealthCare; Isaac Kohane, Harvard Medical School; Katherine Liao, Brigham and Women's Hospital; Tianxi Cai, Harvard T.H. Chan School of Public Health

3:45 p.m. Floor Discussion

13 CC-West 222

■ Integrative Approaches for Analysis of Complex Phenotype and DNA Sequence Data—Invited

ENAR, WNAR, Section on Statistics in Genomics and Genetics

Organizer(s): Dmitri Zaykin, National Institute of Environmental Health Sciences

Chair(s): Dmitri Zaykin, National Institute of Environmental Health Sciences

2:05 p.m. Simultaneous Genetic Analysis of Sequence Data from a Pair of Organisms That Jointly Influence a Phenotype—✦Mary Sara McPeek, University of Chicago; Miaoyan Wang, UC Berkeley

2:25 p.m. Genetic Analysis of High-Dimensional Phenotypes—✦Michael Philip Epstein, Emory University

2:45 p.m. Rare Variant Prioritization Using Structure-Supervised Locus-Specific Tests—✦Jung-Ying Tzeng, North Carolina State University; Rachel Marceau, North Carolina State University; Wenbin Lu, North Carolina State University

3:05 p.m. Unified Sequence Based Association Tests Allowing for Multiple Functional Annotation Scores, and Applications to Meta-Analysis of Noncoding Variation in Metabochip Data—✦Iuliana Ionita-Laza, Columbia University

3:25 p.m. Disc: Olga Vsevolozhskaya, University of Kentucky

3:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

14 CC-West 114

Translational Methods for the Assessment of Brain Function—Invited

Section on Statistics in Imaging

Organizer(s): Jeff Goldsmith, Columbia University

Chair(s): Jeff Goldsmith, Columbia University

2:05 p.m. Statistical Modeling of Brain Networks Using Multimodal Neuroimaging—✦Ying Guo, Emory University; Yingtian Hu, Emory University

2:30 p.m. Template ICA: Estimating Resting-State Networks from fMRI in Individual Subjects Using Empirical Population Priors—✦Amanda Mejia, Indiana University; Yikai Wang, Emory University; Brian Caffo, Johns Hopkins University; Ying Guo, Emory University

2:55 p.m. Spectral Causality in Multivariate Signals: Beyond Linearity—✦Hernando Ombao, King Abdullah University of Science and Technology; Abdulrahman Althobaiti, Rutgers University and King Abdullah University of Science and Technology

3:20 p.m. Intermodal Coupling Analytics for Function-Function and Function-Structure Mapping—✦Russell T Shinohara, University of Pennsylvania

3:45 p.m. Floor Discussion

15 CC-West 109

Medallion Lecture I—Invited

IMS

Organizer(s): Sayan Mukherjee, Duke University

Chair(s): Dan Cooley, Colorado State University

2:05 p.m. Statistical Inference for Complex Extreme Events—✦Anthony Davison, Ecole Polytechnique Fédérale de Lausanne (EPFL)

3:45 p.m. Floor Discussion

Invited Panels 2:00 p.m.—3:50 p.m.

16 CC-West 118

■ ● Big Data Detectives: Improving Human Health Through Informing Policy—Invited

Health Policy Statistics Section, Biopharmaceutical Section, Biometrics Section

Organizer(s): Sherri Rose, Harvard Medical School

Chair(s): Ani Eloyan, Brown University

Panelists: ✦Kristin Linn, University of Pennsylvania

✦Laura Hatfield, Harvard Medical School

✦Julian Wolfson, University of Minnesota

✦Sherri Rose, Harvard Medical School

3:40 p.m. Floor Discussion

Topic Contributed Sessions 2:00 p.m.—3:50 p.m.

17 CC-West 306

■ ● Dose Selection and PDUFA VI: Advancing the Model Based Drug Development in Regulatory Environment—Topic Contributed

Biopharmaceutical Section, Society for Clinical Trials, Health Policy Statistics Section

Organizer(s): Satrajit Roychoudhury, Pfizer

Chair(s): Satrajit Roychoudhury, Pfizer

2:05 p.m. MIDD: Perspectives and Possibilities—✦Dionne Price, Food and Drug Administration

2:25 p.m. Dosing Designs for Bayesian Emax Models—✦Neal Thomas, Pfizer

2:45 p.m. Dose Selection Using Nonlinear Mixed-Effect Model Averaging Approaches in Conjunction with Adaptive Optimal Design Techniques—✦Andrew Hooker, Uppsala Universitet

3:05 p.m. Disc: José Pinheiro, Janssen Research and Development

3:25 p.m. Floor Discussion

18 CC-West 215/216

■ ● Survival Analysis Developments for Improving Medical Decision Making—Topic Contributed

ENAR, Biometrics Section, Lifetime Data Analysis Interest Group

Organizer(s): Xuelin Huang, University of Texas MD Anderson Cancer Center

Chair(s): Yayuan Zhu, University of Texas MD Anderson Cancer Center

2:05 p.m. Time-Dependent Covariates in Recurrent Event Models—✦Xianghua Luo, University of Minnesota, School of Public Health; Tianmeng Lyu, University of Minnesota; Yifei Sun, Columbia University; Chiung-Yu Huang, University of California at San Francisco

2:25 p.m. Optimal Timing of Stem Cell Transplant for Leukemia Patients—✦Xuelin Huang, University of Texas MD Anderson Cancer Center; Ruosha Li, University of Texas School of Public Health; Jorge Cortes, University of Texas MD Anderson Cancer Center

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

2:45 p.m. Joint Modeling of Multiple Time-To-Event Outcomes—✦Shanshan Zhao, National Institute of Environmental Health Sciences; Ross Prentice, Fred Hutchinson Cancer Research Center

3:05 p.m. Optimal Multiple Confidence Regions—✦Edsel Pena, University of South Carolina; Taeho Kim, University of South Carolina

3:25 p.m. Semiparametric Regression Methods for Temporal Processes Subject to Multiple Sources of Censoring—✦Douglas E. Schaubel, University of Michigan, Ann Arbor; Tianyu Zhan, AbbVie Inc.

3:45 p.m. Floor Discussion

19 CC-West 203

■ Powerful and Practical Skills for Statistical Professionals: Selected Presentations from CSP—Topic Contributed

Conference on Statistical Practice Steering Committee

Organizer(s): Kim Love, K. R. Love Quantitative Consulting and Collaboration

Chair(s): Eric Vance, LISA-University of Colorado Boulder

2:05 p.m. Data Scraping, Parsing, Wrangling, and Cleaning—✦Mark Daniel Ward, Purdue University

2:25 p.m. Bridging the Gap on Multi-Channel Attribution—✦John Lin, Epsilon Data Management, Inc.

2:45 p.m. How to Avoid Some Common Graphical Mistakes—✦Naomi Robbins, NBR

3:05 p.m. Statistical Presentation Power: How to Reveal Your 'X Factor'!!!—✦Jennifer Van Mullekom, Virginia Tech

3:25 p.m. Disc: Sylvia M Dohrmann, Westat

3:45 p.m. Floor Discussion

20 CC-West 214

■ Statistical Considerations for Using Historical Controls in Clinical Trials—Topic Contributed

Biopharmaceutical Section, Biometrics Section

Organizer(s): Yeh-Fong Chen, US FDA

Chair(s): George Kordzakhia, US FDA

2:05 p.m. Using Historical Controls in CNS Clinical Trials—✦Xiang Ling, FDA/CDER/OTS/OB; Kun Jin, FDA; Hsien-Ming James Hung, PhD, Food and Drug Administration

2:25 p.m. Designing Trials Using Bayesian Methods with Historical Controls—✦Michael Sonksen, Eli Lilly and Company

2:45 p.m. Advancing Methodologies for Clinical Trials Using Historical Control—✦Min Min, U.S. Food and Drug Administration, CDER/OTS/OB; Yeh-Fong Chen, US FDA

3:05 p.m. Use of Real-World in Clinical Drug Development—✦Xiuyu Julie Cong, Boehringer Ingelheim Pharmaceuticals Inc; Susan Wang, Boehringer Ingelheim Pharmaceuticals Inc.

3:25 p.m. Disc: Aloka Chakravarty, Office of Biostatistics of CDER/FDA

3:45 p.m. Floor Discussion

21 CC-West 217

■ ● Spatial and Spatio-Temporal Statistics for Biomedical and Epidemiological Studies—Topic Contributed

Biometrics Section

Organizer(s): Jun Zhu, University of Wisconsin - Madison

Chair(s): Junho Lee, King Abdullah University of Science and Technology

2:05 p.m. Cluster-Temporal Models for Disease Surveillance with an Application to Dengue Fever Infection in Taiwan—✦Pei-Sheng Lin,

2:25 p.m. Space and Space-Time Cluster Detection Using the LASSO in Disease Mapping—✦Ronald Gangnon, University of Wisconsin; Maria Kamenetsky, University of Wisconsin-Madison; Junho Lee, King Abdullah University of Science and Technology; Jun Zhu, University of Wisconsin - Madison

2:45 p.m. Interacting Cluster Point Process Model for Epidermal Nerve Fibers—✦Guilherme Ludwig, University of Campinas; Nancy Lopes Garcia, University of Campinas; Peter Guttorp, University of Washington / Norwegian Computing Center

3:05 p.m. Spatially Varying Coefficient Models for Point Pattern Analysis with Large Data Sets—✦Huiyan Sang, Texas A&M University

3:25 p.m. Semiparametric Regression Methods for Spatial and Spatio-Temporal Data with Application to Fine Particulate Matter (PM2.5) Studies—✦Lily Wang, Iowa State University; Jingru Mu, Iowa State University; Guannan Wang, College of William & Mary

3:45 p.m. Floor Discussion

22 CC-West 210

■ ● The World of Data Analysis Professionals—Topic Contributed

Section for Statistical Programmers and Analysts, Section on Statistical Learning and Data Science, Business Analytics/Statistics Education Interest Group

Organizer(s): Nancy Wang, Celerion

Chair(s): Nancy Wang, Celerion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

2:05 p.m. Bridge the Gap Between Statistician and Data Analysis Professionals—✦Ming Li, Amazon

2:25 p.m. Boost Your Analytical Power by Utilizing Text Data—Jin Su, Johnson & Johnson Vision Care; ✦Danielle Boree, Johnson & Johnson Vision

2:45 p.m. Statistics at Consumer Reports—✦Michael Saccucci, Consumer Reports

3:05 p.m. Developing a Data Science Program; Challenges and Outcomes—✦Mahbubul Majumder, University of Nebraska at Omaha

3:25 p.m. Disc: Greg Valin, Amgen, Inc

3:45 p.m. Floor Discussion

SUNDAY

23 CC-West 205

■ ● Recents Advances in Statistical Learning and Network Data Analysis—Topic Contributed

Section on Statistical Learning and Data Science, SSC

Organizer(s): Sijian Wang, Rutgers University

Chair(s): Sijian Wang, Rutgers University

2:05 p.m. High-dimensional Cost-constrained Regression via Non-convex Optimization—✦Yufeng Liu, University of North Carolina at Chapel Hill

2:25 p.m. Generalized Bias and Variance for Convex Regularized Estimators—✦Pierre Bellec, Rutgers University

2:45 p.m. High-Dimensional Gaussian Graphical Model for Network-Linked Data—✦Ji Zhu, University of Michigan; Boang Liu, University of Michigan; Tianxi Li, University of Michigan; Cheng Qian, University of Michigan; Elizaveta Levina, University of Michigan

3:05 p.m. Toward a Sampling Theory for Statistical Network Analysis—✦Harry Crane, Rutgers

3:25 p.m. Network Regression and Inference—✦Peng Wang, University of Cincinnati; Xiaotong Shen, University of Minnesota

3:45 p.m. Floor Discussion

24 CC-West 117

■ ● Assisting Natural Resource Agencies with Improved Inferences on Ecological Processes—Topic Contributed

Section on Statistics and the Environment, Survey Research Methods Section

Organizer(s): Brian R Gray, US Geological Survey

Chair(s): Katharine Banner, Montana State University

2:05 p.m. Methods for Estimating Trend in Indicators Monitored with Complex Survey Designs—✦Leigh Starcevich, Western EcoSystems Technology Inc. (WEST)

2:25 p.m. Modeling Abundance of Multiple Species Using Latent Regression Tree Algorithms—✦Haoyu Zhang, Kansas State University; Trevor Hefley, Kansas State University; Brian R Gray, US Geological Survey; Kristin Bouska, USGS

2:45 p.m. A Multiseason Site Occupancy Model for Use When Sites Are Not Revisited Among Seasons—✦Brian R Gray, US Geological Survey; Darryl I MacKenzie, Proteus Wildlife Research Consultants; Richard A Erickson, US Geological Survey

3:05 p.m. Examining the Trade-Off Between Computational Gains and Reduced Flexibility When Marginalizing Discrete Latent States in Bayesian Population Models—Charles Yackulic, ; ✦Michael Dodrill, USGS

3:25 p.m. Exploiting the Latent Beta Distribution for Modeling Plant Abundance—✦Kathryn Irvine, US Geological Survey

3:45 p.m. Floor Discussion

25 CC-East 14

■ Recent Research on Current Population Survey—Topic Contributed

Survey Research Methods Section, Government Statistics Section, Social Statistics Section

Organizer(s): Yang Cheng, US Census Bureau

Chair(s): Stephen Ash, US Census Bureau

2:05 p.m. Optimal AK Composite Estimators in Current Population Survey—✦Yang Cheng, US Census Bureau; Jun Shao, University of Wisconsin; Yu Zhou, East China Normal University

2:25 p.m. Understanding Variance Estimator Bias in Stratified Two-Stage Sampling—✦Khoa Dong, U.S. Census Bureau; Timothy Trudell, US Census Bureau; Yang Cheng, US Census Bureau; Eric Slud, U.S. Census Bureau

2:45 p.m. Computing Replicated Variance for Stratified Systematic Sampling—✦Timothy Trudell, US Census Bureau; Khoa Dong, U.S. Census Bureau; Yang Cheng, US Census Bureau; Eric Slud, U.S. Census Bureau

3:05 p.m. Current Population Survey State GVFs and Design Effects—Tamara Zimmerman, Bureau of Labor Statistics; ✦Edwin Robison, Bureau of Labor Statistics

3:25 p.m. Disc: Snigdhansu Chatterjee, University of Minnesota

3:45 p.m. Floor Discussion

26 CC-West 116

● Leading to Quantitative Literacy—Topic Contributed

Section on Teaching of Statistics in the Health Sciences, Committee on Professional Ethics, Committee on Applied Statisticians, Section on Statistical Education

Organizer(s): Rochelle Tractenberg, Georgetown University

Chair(s): Laila Poisson,

2:05 p.m. Statistical Literacy for the Practicing Health Scientist—✦Rochelle Tractenberg, Georgetown University

2:25 p.m. Knowledge Assessment of Statistics Educators in the Health Sciences—✦Matthew Hayat, Georgia State University; Michael Jiroutek, Campbell University; MyoungJin Kim, Illinois State University; Todd Schwartz, University of North Carolina at Chapel Hill

2:45 p.m. Graphical and Quantitative Literacy: Empowerment Begins with Naming and Describing What We Do—✦Susan Duke, FDA

3:05 p.m. Increasing Statistical Literacy by Thinking Like a Journalist (And Maybe Even Working with One)—✦Regina Nuzzo, Gallaudet University

3:25 p.m. Floor Discussion

Contributed Sessions 2:00 p.m.—3:50 p.m.

27 CC-West 213

SPEED: Survival Analysis—Contributed

Biometrics Section, Section on Statistics in Epidemiology, Section on Risk Analysis

Chair(s): Xiaoxuan Cai, Yale University

2:05 p.m. Regression Calibration to Address Error Prone Time-To-Event Outcomes—✦Eric Oh, University of Pennsylvania; Pamela A Shaw, University of Pennsylvania

2:10 p.m. A Gaussian Copula Approach for Dynamic Prediction of Survival with a Longitudinally Measured Marker—✦Krithika Suresh, University of Michigan; Jeremy M.G. Taylor, University of Michigan; Alexander Tsodikov, University of Michigan

2:15 p.m. Adjusting for Covariate Measurement Error in Failure Time Analysis Under Competing Risks—✦Carrie Caswell, University of Pennsylvania; Sharon X Xie, University of Pennsylvania

2:20 p.m. Imputation of Missing EHR Data for Modeling Correlated Survival Outcomes—✦Jasmin Divers, Wake Forest School of Medicine; W Mark Brown, Wake Forest School of Medicine; Lijun Ma, Wake Forest School of Medicine; Barry I Freedman, Wake Forest School of Medicine

2:25 p.m. Dependence Modeling for Recurrent Event Times Subject to Right-Censoring with D-Vine Copulas—✦Nicole Barthel, Technical University Munich; Candida Geerdens, Hasselt University; Claudia Czado, Technical University Munich; Paul Janssen, Hasselt University

2:30 p.m. Flexible and Interpretable Models for Survival Data—✦Jiacheng Wu, Univesity of Washington; Daniela Witten, University of Washington

2:35 p.m. Estimation in the Nested Case-Control Design Under Model Misspecification—✦Michelle Nuno, ; Daniel L. Gillen, University of California, Irvine

2:40 p.m. Cox Regression with Non-Ignorable Survival Dependent Missing Covariate Values—✦Yanyao Yi, UNIVERSITY OF WISCONSIN-MADISON; TING YE, UNIVERSITY OF WISCONSIN-MADISON; MENGGANG YU, UNIVERSITY OF WISCONSIN-MADISON; Jun Shao, UNIVERSITY OF WISCONSIN-MADISON

2:45 p.m. Temporally Dependent Accelerated Failure Time Model for Capturing the Impact of Events That Alter Survival in Disease Mapping—✦Rachel Carroll, National Institute of Environmental Health Sciences; Andrew B Lawson, Medical University of South Carolina ; Shanshan Zhao, National Institute of Environmental Health Sciences

2:50 p.m. An Innovative Approach to Identify Biomarker Signatures for Cancer Genetic Data with Survival Endpoints—✦Ming Wang, Pennsylvania State University; Zheng Li, Penn State University

3:00 p.m. Survival Analysis Methods for Characterizing B-Cell Mutation Processes—✦David A. Shaw, Fred Hutchinson Cancer Research Center; Jean Feng, University of Washington; Vladimir N. Minin, University of California, Irvine; Noah Simon, University of Washington; Erick A. Matsen, Fred Hutchinson Cancer Research Center

3:05 p.m. Competing Risks Matter in the Analysis of Public Health Data: When and How?—✦Dahhay Lee, National Cancer Center; Hyunsoon Cho, National Cancer Center

3:10 p.m. Multivariate Spatial Modeling of Interval-Censored Time-To-Event Data and Clinic Visit Counts—✦Martiniano Flores, University of California, Los Angeles; Robert Weiss, UCLA; Matthew Beymer, Los Angeles LGBT Center

3:15 p.m. Inference for Fine-Gray Competing Risks Model with High-Dimensional Covariates—✦Jue Hou, UCSD Biostatistics; Jelena Bradic, UC San Diego; Ronghui Xu, UC San Diego

3:20 p.m. Semiparametric Regression Analysis of Length-Biased Interval-Censored Data—✦Fei Gao, University of Washington; Kwun Chuen Gary Chan, University of Washington

3:25 p.m. Sample Size Calculations for Non-Inferiority Trials Using the Concept of Proportional Time—✦Milind A Phadnis, University of Kansas Medical Center

3:30 p.m. On the Effect of Underlying Dependence Mechanism Over Time-Varying Models for Recurrent Time-To-Event Data—✦Leila D. Amorim, Universidade Federal da Bahia (UFBA); Marcelo M. Taddeo, Universidade Federal da Bahia (UFBA)

3:35 p.m. Regression Analysis of Recurrent Event Data with Measurement Error—✦Yixin Ren, University of Maryland, College Park; Xin He, University of Maryland, College Park

3:40 p.m. Monitoring Rare Events During an Ongoing Clinical Trial—✦Haley Hedlin, Stanford University; Victoria Ding, Quantitative Sciences Unit, Stanford School of Medicine

3:45 p.m. Matching Methods for Evaluating the Effect of a Time-Dependent Treatment on the Survival Function—✦Danting Zhu, University of Michigan; Douglas E. Schaubel, University of Michigan, Ann Arbor

28 CC-West 208

SPEED: a Mixture of Topics in Health, Computing, and Imaging—Contributed

Mental Health Statistics Section, Section on Statistical Computing, Section on Statistics in Imaging, Section on Statistical Learning and Data Science, SSC, Section on Physical and Engineering Sciences, Section for Statistical Programmers and Analysts

Chair(s): Lu Chen, Worcester Polytechnic Institute

2:05 p.m. Remote Perconditioning Enhances Neuro Protection and Collateral Blood Flow During Ischemia in Distal Cerebral Ischemic Rat Model (MCAo) Through AMPK-ENOS Pathways—✦Abdul Salam, Hamad Medical Corporation; Aijaz Parray, Hamad Medical Corporation; yonglie Ma, University of Alberta ; Naveed Akhter, Hamamd Medical Corporation; Sajitha VP, Hamad Medical Corporation; Ruth Priyanka, Hamamd Medical Corporation; Ian Winship, University of Alberta; Nosheen Shahid, Hamamd Medical Corporation; Ashfaq Shuaib, University of Alberta

2:10 p.m. Polynomial Based Approximate Probability Distributions—✦Chris Elrod, Baylor University; James Stamey, Baylor University

2:15 p.m. Measurement Reliability in Mental Health Research: Critical Implications for Research Design and Analysis—✦Alessandro De Nadai, Texas State University; Marieke Visser, Texas State University

2:20 p.m. Latent Class Model with Mixed-Mode Data—✦Yawei Liang, University of South Carolina; David Hitchcock, University of South Carolina

2:25 p.m. Multivariate Change Point Detection in Non-Asymptotic Settings—✦Ian Barnett, University of Pennsylvania

2:30 p.m. Robust Covariance Estimation and Beyond—✦Yuan Ke, Penn State University; Wenxin Zhou, University of California, San Diego; Qiang Sun, University of Toronto

2:35 p.m. Common Reducing Subspace Model and Network Alternation Studies—✦Wenjing Wang, Florida State University; Xin Zhang, Florida State University; Lexin Li, University of California at Berkeley

2:40 p.m. Tailoring PCA for Detecting Sparse Changes in Multi-Stream Data—✦Martin Tveten, University of Oslo; Ingrid Kristine Glad, University of Oslo

2:45 p.m. Ranked Sparsity Methods for Transparent Model Selection—✦Ryan Andrew Peterson, University of Iowa; Joseph Cavanaugh, University of Iowa

2:50 p.m. Image-On-Image Regression: a Spatial Bayesian Latent Factor Model for Predicting Task-Evoked Brain Activity Using Task-Free MRI—✦Cui Guo, University of Michigan

3:00 p.m. Fusion of the Semiparametric Models and Network Measures in the Study of Brain Dynamic Functional Connectivity—✦Maria Kudela, Takeda Pharmaceuticals; Jaroslaw Harezlak, Indiana University Bloomington; Mario Dzemidzic, Indiana University School of Medicine; Brandon Oberlin, Indiana University School of Medicine; David A Kareken, Indiana University School of Medicine; Joaquin Goni, Purdue University

3:05 p.m. Fast Generalised Linear Models in a Database—✦Thomas Lumley, University of Auckland

3:10 p.m. A Deep Learning Approach to the Estimation of Bias and Variance in HARDI—✦Allison Hainline, Vanderbilt University; Hakmook Kang, Vanderbilt University Medical Center; Bennett Landman, Vanderbilt University

3:15 p.m. Creating Counting Process Intervals with Ease—✦Cynthia Crowson, Mayo Clinic; Terry M Therneau, Mayo Clinic; Elizabeth J Atkinson, Mayo Clinic

3:20 p.m. Multi-Scale Vecchia Approximation of Gaussian Processes—✦Jingjie Zhang, Texas A&M University; Matthias Katzfuss, Texas A&M University

29 CC-West 212

SPEED: An Ensemble of Advances in Genomics and Genetics—Contributed

Section on Statistics in Genomics and Genetics, ENAR, SSC, Section on Risk Analysis, Section on Statistical Computing, Biometrics Section

Chair(s): Paul Little, UNC Chapel Hill

2:05 p.m. Discrete Principal Component Analysis for Population Stratification—✦Nedret Billor, Auburn University; Yuan Yuan, Auburn University; Asuman Seda Turkmen, The Ohio State University

2:10 p.m. On Using Gene Genealogies to Find Trait-Influencing Variants—✦Payman Nickchi, Simon Fraser University; Jinko Graham, Simon Fraser University

2:15 p.m. A Tight Spectral Clustering Algorithm for Bipartite Networks with Node Covariates—✦Yidan Sun,

2:20 p.m. A Hierarchical Bayesian Deconvolution Model for Inferring Immune Cell Components in Tumor—✦An-Shun Tai, National Tsing Hua University

2:25 p.m. A Hybrid Method of the Sequential Monte Carlo and the Edgeworth Expansion for Computation of Very Small P-Values in Permutation Tests—✦James Jian Yang, University of Michigan; Anne YuhPey Buu, University of Michigan

2:30 p.m. A Novel Framework for Differential Gene Expression Analysis Using Robust Profile Likelihood Ratios—✦Lehang Zhong, Division of Biostatistics, Dalla Lana School of Public Health, University of Toronto; Lisa Joanna Strug, Genetics and Genome Biology, The Hospital for Sick Children

2:35 p.m. Empirical Bayes Analysis of Overdispersed High-Dimensional Protein Interaction Data—✦Anna Reisetter,

2:40 p.m. An Efficient Resampling Method for Order-Restricted Gene-Trait Association Analysis—✦Yeonil Kim, University of Florida; Yueh-Yun Chi, University of Florida; Fei Zou, University of North Carolina at Chapel Hill

2:45 p.m. MHi-C: Robust Leveraging of Multi-Mapping Reads in Hi-C Analysis—✦Ye Zheng, University of Wisconsin Madison; Ferhat Ay, La Jolla Institute for Allergy and Immunology; Sunduz Keles, University of Wisconsin, Madison

2:50 p.m. A Method for Estimating SNP Heritability with Consideration of Variant Correlation and Non-Parametric Relationship—✦Hsiao-Chi Liao, National Taiwan University; Chuhsing Kate Hsiao, National Taiwan University Institute of Epidemiology and Preventive Medicine

3:00 p.m. A Nearly Optimal Sequential Testing Approach to Permutation-Based Association Testing—✦Julian Hecker, Harvard T.H. Chan School of Public Health; Ingo Ruczinski, Bloomberg School of Public Health; Brent A. Coull, Harvard TH Chan School of Public Health; Christoph Lange, Harvard T.H. Chan School of Public Health

3:05 p.m. P-Value Estimation for the Risk Score of a Prediction Model—✦Heidi Chen, Vanderbilt University Medical Center; Ming Li, Case Western Reserve University; Huiyun Wu, St. Jude Children's Research Hospital; Yu Shyr, Vanderbilt University Medical Center

3:10 p.m. Novel Methods for Gene Set Enrichment Analysis with Empirical Memberships for Overlapping Genes—✦Yun Zhang, University of Rochester; Xing Qiu, University of Rochester

3:15 p.m. Statistical Learning on Next-Generation Sequencing of T Cell Repertoire Data—✦Li Zhang, UCSF School of Medicine, UCSF; Tao He, San Francisco State University; Alan Paciorek, University of California, San Franciscornia ; Jason Cham, University of California, San Francisco; David Oh, University of California, San Francisco; Lawrence Fong, University of California, San Francisco

3:20 p.m. An Integrative Bayesian Approach to Dissect Complex Trait Etiology—✦Corbin Quick, University of Michigan

3:25 p.m. Zero Inflated Poisson Factorization for Single Cell RNA-Sequencing Data Imputation—✦Mark Anthony Carty, Princeton University; Barbara Engelhardt, Princeton University

3:30 p.m. Optimal Covariate Weighting Increases Discoveries in High-Throughput Biology—✦Paul Schliekelman, University of Georgia; Mohamad Hasan, University of Georgia

3:35 p.m. Statistical Approach for Investigating Change in Mutational Processes During Cancer Growth and Development—✦Zhi Yang, University of Southern California; Priyatama Pandey, University of Southern California; Darryl Shibata, University of Southern California; Paul Southern Marjoram, University of Southern California; Kimberly Siegmund, University of Southern California

3:40 p.m. Gene Expression-Based Classification of Cancer Tumours via Penalized Probabilistic Principal Components Analysis—✦Wei Deng, University of Toronto; Radu V Craiu, University of Toronto

3:45 p.m. Benford's Law Based Outliers Detection for Population Stratification in Genotype Data—✦Yuan Yuan, Auburn University; Nedret Billor, Auburn University; Asuman Seda Turkmen, The Ohio State University

SUNDAY

30 CC-West 209

SPEED:Statistics and Econometrics—Contributed

Business and Economic Statistics Section, Quality and Productivity Section, Section on Statistical Graphics, Transportation Statistics Interest Group, Section on Statistics in Marketing, Business Analytics/ Statistics Education Interest Group

Chair(s): Denis Talbot, Universite Laval

2:05 p.m. Advantageous Statistical Tools for Stock Market Investing—✦Kenneth Davis,

2:10 p.m. Multivariate Testing for Fractional Integration—✦Paulo Rodrigues, Banco de Portugal; Robert Taylor, University of Essex; Antonio Rubia, University of Alicante; Marina Balboa, University of Alicante

2:15 p.m. Mixed-Typed of Data Distance Metric of Real Estate Properties with Missing Data—✦Keying Ye, University of Texas at San Antonio

2:20 p.m. Benchmarking Monthly Seasonally Adjusted Series to Quarterly Adjustments—✦Brian Monsell, U.S. Census Bureau; Tucker S McElroy, U.S. Census Bureau

2:25 p.m. Sample Size Requirements for Estimating L-Moments—✦Timothy Anderson, Air Force Institute of Technology; Christine M Schubert, Air Force Institute of Technology; Fairul Mohd-Zaid, Air Force Research Lab

2:30 p.m. THE INEQUALITY PROCESS' (IP's) FOOTPRINT in STOCK MARKET "STYLIZED FACTS"—✦John Angle, The Inequality Process Institute LLC

2:35 p.m. Repeated-Measures ANCOVA for an Antibiotic-Free Experiment in Swine—✦Danielle Wilson-Wells, DNA Genetics; Tom A. Rathje, DNA Genetics; Caitlyn E Bruns, DNA Genetics

2:40 p.m. Understanding Reshoring Through Data Visualization—✦Megan Eileen Moore, North Carolina State University; Lori Rothenberg, NC State University

2:45 p.m. Factor GARCH-Ito Models for High-Frequency Data with Application to Large Volatility Matrix Prediction—✦Donggyu Kim, KAIST; Jianqing Fan, Princeton University

2:50 p.m. Is Faster Always Better? Results from Joint Time-Use-Expenditure and Mode Choice Model—✦Simona Jokubauskaite, Institute of Applied Statistics and Computing, BOKU Vienna; Reinhard Hoessinger, Institute for Transport Studies, BOKU Vienna; Florian Aschauer, Institute for Transport Studies, BOKU Vienna; Regine Gerike, Institute of Transport Planning and Road Traffic, TU Dresden; Sergio Jara-Diaz, University of Chile; Stefanie Peer, Institute for Multi-Level Governance and Development, WU Vienna; Basil Schmid, Institute for Transport Planning and Systems, ETH Zurich; Kay W. Axhausen, Institute for Transport Planning and Systems, ETH Zurich; Friedrich Leisch, Institute of Applied Statistics and Computing, BOKU Vienna

3:00 p.m. Monte Carlo Tree Search and AlphaZero: Past, Present, and Future—✦Michael Fu, Smith School of Business

3:05 p.m. Bootstrap and Asymptotic Inference with Multiway Clustering—✦Matthew Webb, Carleton University; James Gordon MacKinnon, Queen's University; Morten ÿ Nielsen, Queen's University and CREATES

3:10 p.m. Cash Versus Card: Payment Discontinuities and the Burden of Holding Coins—✦Huynh Kim, Bank of Canada; Heng Chen, Bank of Canada; Oz Shy, Unaffiliated

3:15 p.m. Enhancing Communication in Data Visualization—✦Mojca Bavdaz, University of Ljubljana; Irena Bolko, University of Ljubljana, Social Science Data Archives

3:20 p.m. The Analysis of Means in the Presence of Covariate (ANOMC)—✦Tahir Mahmood, City University of Hong Kong; Min Xie, City University of Hong Kong; Muhammad Riaz, King Fahd University of Petroleum and Minerals

3:25 p.m. Model Averaging in a Multiplicative Heteroscedastic Model—✦Alan Wan, City Univ of Hong Kong; Xinyu Zhang, Chinese Academy of Sciences; Yanyuan Ma, Penn State University

3:30 p.m. The Art of Ensemble Modeling with SPSS Modeler—✦Zhen Zhang, C Spire; Lei Zhang, Mississippi State Dept. of Health; James Veillette, C Spire; Timothy Tate, C Spire

3:35 p.m. Two-Sample Test for Covariance Operators with Incompletely Observed Functional Data—✦Lihan Yan, FDA; Tao Zhang, Guangxi University of Science and Technology; Zhaohai Li, George Washington University

3:40 p.m. Perspectives, Performance Measurement, and Multivariate Analysis of Grades in Teaching Statistics—✦William Seaver, Univ. of Tennessee at Knoxville; Missy Morris, Univ. of Tennessee at Knoxville; Thomas Edmiston, Univ. of Tennessee at Knoxville

3:45 p.m. Applications of Non-Standard Disclosure-Avoidance Methods in Clinical Trials Data—✦Barbara Do, RTI International; Pooja Iyer, RTI International

Contributed Sessions 2:00 p.m.—3:50 p.m.

31 CC-West 218

■ Categorical Data—Contributed

Biometrics Section

Chair(s): Rhonda Bacher, University of Florida

2:05 p.m. A Goodness-of-Fit Test for the Ordered Stereotype Model—✦Daniel Fernandez-Martinez, Victoria University of Wellington; Ivy Liu, Victoria University of Wellington

2:20 p.m. Bias and Estimation Under Misspecification of the Risk Period in Self-Controlled Case Series Studies—✦Danh Nguyen, University of California At Irvine; Luis Fernando Campos, Harvard University; Yanjun Chen, UC Irvine; Damla Senturk, UCLA, Dept. of Biostatistics

2:35 p.m. A Conway-Maxwell-Multinomial Distribution for Flexible Modeling of Categorical Data—✦Darcy Steeg Morris, U.S. Census Bureau; Kimberly F Sellers, Georgetown University; Andrew Raim, U.S. Census Bureau

2:50 p.m. Log Binomial Regression When the Maximum Likelihood Solution Is on the Boundary of the Parameter Space—✦Chao Zhu, Menzies Institute of Medical Research, University of Tasmania; David W Hosmer, University of Massachusetts; Jim Stankovich, School of Medicine, University of Tasmania; Karen Wills, Menzies Institute of Medical Research, University of Tasmania; Leigh Blizzard, Menzies Institute of Medical Research, University of Tasmania

3:05 p.m. Optimal Scaling for a Logistic Regression Model with Ordinal Covariates—✦Sanne JW Willems, Leiden University; Marta Fiocco, Leiden University; Jacqueline J Meulman, Leiden University & Stanford University

3:20 p.m. Combining Confidence Distributions for Rare Event Meta-Analysis—✦Brinley Zabriskie, Utah State University; Chris Corcoran, Utah State University; Pralay Senchaudhuri, Cytel Software Corporation

3:35 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

32 CC-West 219

■ Longitudinal/Correlated Data I—Contributed

Biometrics Section

Chair(s): Guanghao Qi, Johns Hopkins University

2:05 p.m. Rank-Tracking Probabilities of Bivariate Dependent Variables in Longitudinal Studies—✦Seonjin Kim, Miami University; Hyunkeun Cho, University of Iowa; Colin O. Wu, National Heart, Lung and Blood Institute, NIH

2:20 p.m. Model Selection for Longitudinal Data with Time-Dependent Covariates Using Generalized Method of Moments—✦Maryann N Shane, CNA Corporation

2:35 p.m. Optimal Dose Selection Considering Both Toxicity and Activity Data; Plateau Detection for Molecularly Targeted Agents—✦Maria Athina Altzerinakou, Inserm; Xavier Paoletti, Gustave Roussy

2:50 p.m. Efficient Analysis for fMRI Studies—✦Lan Liu, University of Minnesota at Twin Cities

3:05 p.m. Joint Modeling Approach to Analyze Sequential Time-To-Events—✦Md Akhtar Hossain, University of South Carolina; Hrishikesh Chakraborty, Duke Clinical Research Institute, Duke University

3:20 p.m. Joint Modeling of Longitudinal Multidimensional Quality of Life Measures in Chronic Dialysis Patients—✦Sudeshna Paul, Emory University; Mi-Kyung Song, Emory University

3:35 p.m. Simulation Study on the Impact of Accuracy of Estimated Genetic Relationship Matrices on Predicting Genotype Performance—✦MINGZHU SUN, The University of Queensland; Vivi Arief, UNIVERSITY OF QUEENSLAND; Ian DeLacy, UNIVERSITY OF QUEENSLAND; Kaye Basford, UNIVERSITY OF QUEENSLAND; Wen-Hsi Yang, UNIVERSITY OF QUEENSLAND

33 CC-West 115

Applications in Time Series Analysis—Contributed

Business and Economic Statistics Section

Chair(s): Benjamin Risk, Emory University

2:05 p.m. Predictive Inference for Locally Stationary Time Series with an Application to Climate Data—✦Srinjoy Das, UCSD; Dimitris Politis, UCSD

2:20 p.m. On the Choice of Instruments in Mixed Frequency Speficication Tests—✦Yun Liu, Michigan Technological University; Yeonwoo Rho, Michigan Technological University

2:35 p.m. Estimation of Change-Point for a Class of Count Time Series Models—✦Yunwei Cui, Towson University

2:50 p.m. The Measurement of the Aggregate Economic Performance for the United States via the Composite Economic Index (CEI)—✦Brian Sloboda, University of Phoenix; Chandrasekhar Putcha, California State University, Fullerton

3:05 p.m. Modeling Conditional Variance Functions Using Nonparametric Transfer Function Models—✦Jun Liu,

3:20 p.m. Forecasting U.S. Textile Comparative Advantage Using Autoregressive Integrated Moving Average Models and Time Series Outlier Analysis—✦Lori Rothenberg, NC State University; Zahra Saki, NC State University; Marguerite Moore, NC State University

3:35 p.m. Floor Discussion

34 CC-West 112

Linear Models for Large or Complex Data—Contributed

IMS

Chair(s): Zhou Fan, Stanford University

2:05 p.m. Parameter Subset Selection for Mixed-Effects Models—✦Kathleen Schmidt, Lawrence Livermore National Laboratory; Ralph C. Smith, North Carolina State University; Jason Bernstein, Lawrence Livermore National Laboratory; Ana Kupresanin, Lawrence Livermore National Laboratory

2:20 p.m. Regression-Adjusted Estimators in Randomized Experiments with a Diverging Number of Predictors—✦Lihua Lei, UC Berkeley; Peng Ding, UC Berkeley

2:35 p.m. BLMM: Linear Mixed Effects Model for Big Data Using Partial EM Procedure—✦Jang Ik Cho, Case Western Reserve University; Jiayang Sun, Case Western Reserve University

2:50 p.m. Significance Testing in Non-Sparse High-Dimensional Linear Models—✦Yinchu Zhu, University of Oregon; Jelena Bradic, UC San Diego

3:05 p.m. Debiasing the Debiased Lasso with Bootstrap—✦Sai Li, Rutgers University

3:20 p.m. Asymptotic Behavior of the Alpha-Risk Minimizing Portfolio in High-Dimensional Setting—✦Hiroyuki Taniai, Waseda University

3:35 p.m. Floor Discussion

35 CC-East 9

Statistics in Sports, Competitions, and the Arts—Contributed

Section on Statistical Education

Chair(s): Jack Follis, University of St. Thomas

2:05 p.m. Senior Swim Competition Times—✦David P. Doane, Oakland University; Lori E Seward, University of Colorado; Kevin Murphy, Oakland University

SUNDAY

2:20 p.m. Playoff Series and the Incomplete Beta Function—✦Roger Johnson, South Dakota School of Mines & Tech

2:35 p.m. Interrater Agreement for Diving Competitions—✦Monnie McGee, Southern Methodist University

2:50 p.m. A Ratio-Based Method for Predicting Point Differentials in Sports—✦Andrew Swift, University of Nebraska at Omaha; Andrew Tew, University of Nebraska at Omaha

3:05 p.m. Problem: Assignment of Posters to Judges—✦Leslie M Moore, Los Alamos National Laboratory, Statistical Sciences Group

3:20 p.m. Statistics in Works of Fiction - in Three Acts—✦André Michelle Lubecke, Lander University

3:35 p.m. Was Will Hunting Really All That Smart?—✦Laurence Robinson, Ohio Northern University

SUNDAY

36 CC-West 221

Methods for Cancer Epidemiology—Contributed

Section on Statistics in Epidemiology

Chair(s): Chengjie Xiong, Washington University in St Louis

2:05 p.m. Bayesian Joinpoint Regression Model to Study the Effect of Smoking on Lung Cancer Incidence—✦Ram C. Kafle, Sam Houston State University; Melinda M. Holt, Sam Houston State University

2:20 p.m. Statistical Interactions from a Growth Curve Perspective—✦Jaya M Satagopan, Memorial Sloan Kettering Cancer Center; Sean Devlin, Memorial Sloan Kettering Cancer Center

2:35 p.m. Evaluating Discriminatory Accuracy of Models Using Partial Risk Scores in Two-Phase Studies—✦Parichoy Pal Choudhury, Johns Hopkins Bloomberg School of Public Health; Anil Chaturvedi, National Cancer Institute; Nilanjan Chatterjee, Johns Hopkins University

2:50 p.m. OptBand: Optimal Confidence Bands for Functions to Characterize Time-≠to-≠event Distributions—✦Sam Tracy, Harvard University; Tom Chen, ; Hajime Uno, Dana Farber Cancer Institute

3:05 p.m. An Analysis of Systematic Correlation Between Food Preferences and Causes of Death in Public Applying the Age-Environment Model to Age-By-Period Data—✦Nobutane Hanayama, Shobi University

3:20 p.m. Leukemia and Myeloid Malignancy Among Cohorts of Persons Exposed to Low Dose (<100 mSv) of Ionizing Radiation in Childhood—✦Mark P Little, National Cancer Institute; Cari M. Kitahara, National Cancer Institute; Elizabeth K Cahoon, National Cancer Institute; Marie-Odile Bernier, National Cancer Institute; Raquel Velazquez-Kronen, National Cancer Institute; Michele M Doody, National Cancer Institute; David Borrego, National Cancer Institute; Jeremy Miller, Information Management Services; Bruce H Alexander, University of Minnesota; Steven L Simon, National Cancer Institute; Dale L Preston, Hirosoft International; Nobuyuki Hamada, Central Research Institute of Electric Power Industry; Martha S Linet, National Cancer Institute; Craig Meyer, University of Minnesota

3:35 p.m. Floor Discussion

37 CC-West 304/305

● Statistical Issues Specific the Therapeutic Areas - 1—Contributed

Biopharmaceutical Section

Chair(s): Qi Jiang, Amgen

2:05 p.m. Robust Dose Response Estimation—✦Shouhao Zhou, University of Texas MD Anderson Cancer Center

2:20 p.m. Statistical Development in Addressing Delayed Treatment Effect or Crossing Survival Curves in Immuno-Oncology Clinical Trials—✦Huyuan Yang, Takeda Oncology Pharmaceutical

2:35 p.m. Cure Survival Data in Oncology Studies—✦Shih-Yuan Lee, Takeda

2:50 p.m. Meta-Analysis for the Adjuvant Treatment in Renal Cell Carcinoma—✦Weichao Bao, Novartis Pharmaceuticals Corporation

3:05 p.m. Correlation Between the Time-To-Event Endpoints in Prostate Cancer Clinical Trials—✦Susan Li, Janssen R&D

3:20 p.m. Statistical Evaluation of Oncology Drug Trial Portfolios and the Potential for Inappropriate Regulatory Approval: a Simulation Study—✦Renee Gennarelli, Memorial Sloan Kettering Cancer Center; Peter Bach, Memorial Sloan Kettering Cancer Center; Mithat Gonen, Memorial Sloan Kettering Cancer Center

3:35 p.m. A Case Study on Model Based Meta-Analysis (MBMA) for Drug Development Decisions—✦Guohui Liu, Takeda Pharmaceuticals Inc ; Zhaoyang Teng, Takeda pharmaceuticals international, Co; Zhaowei Hua, Takeda Pharmaceuticals International Co.; Neeraj Gupta, Takeda pharmaceuticals international, Co; Richard Labotka, Takeda pharmaceuticals international, Co

38 CC-West 119

Study Design: Historical Controls, Endpoint Timing, and Regulatory Considerations—Contributed

Section on Medical Devices and Diagnostics

Chair(s): Dongliang Wang, SUNY Upstate Medical University

2:05 p.m. Application of Propensity Score Quintile Matching for Baseline Parameters in a Medical Device Trial Design—✦Hong Wang, Boston Scientific Corporation; Songtao Jiang, Boston Scientific; Peter Lam, Boston Scientific

2:20 p.m. Strategies for Validating Biomarkers Using Data from a Reference Set—✦Lu Wang, Fred Hutchinson Cancer Research Center; Ying Huang, Fred Hutchinson Cancer Research Center

2:35 p.m. An Adaptive Test of Significance in the Presence of Uncertainty in the Timing of the Final Analysis—✦Jeremy Gorelick, Edwards Lifesciences

2:50 p.m. Statistical Considerations in Cervical Screening Cytology Device Evaluation—✦Xiaoqin Xiong, Food and Drug Administration

3:05 p.m. Leveraging Existing Information in Medical Device Clinical Trials—✦Rajesh Nair, CDRH/FDA; Xuefeng Li, CDRH/FDA; Laura Thompson, CDRH/FDA

3:20 p.m. Floor Discussion

39 CC-West 204

Topics in Clustering—Contributed

Section on Statistical Learning and Data Science

Chair(s): Shanghong Xie, Columbia University

2:05 p.m. Sparse Convex Clustering—✦Binhuan Wang, New York University School of Medicine; Yilong Zhang, Merck Research Laboratories; Will Wei Sun, University of Miami School of Business Administration; Yixin Fang, New Jersey Institute of Technology

2:20 p.m. Finite Mixture-Of-Gamma Distributions: Estimation, Inference, and Model-Based Clustering—✦Derek S. Young, University of Kentucky; Xi Chen, University of Kentucky; Dilrukshi Hewage, University of Kentucky; Ricardo N. Poyanco, FONDAP Center for Genome Regulation

2:35 p.m. Mixture Model Modal Clustering—✦Jose Chacon, Universidad De Extremadura

2:50 p.m. Exploring Clustering Applications in Outlier Detection for Administrative Data Sources—✦Elizabeth Ayres, Statistics Canada

3:05 p.m. Hierarchical Significance Testing for Gaussian Mixture Clustering—✦Purvasha Chakravarti, Carnegie Mellon University; Larry Wasserman, Carnegie Mellon University; Sivaraman Balakrishnan, Carnegie Mellon University

3:20 p.m. Regularized Aggregation of Statistical Parametric Maps—✦Cheolwoo Park, University of Georgia; Li-Yu Wang, University of Georgia; Jongik Chung, University of Georgia; Hosik Choi, University of Georiga; Amanda Rodrigue, University of Georgia; Jordan Pierce, University of Georgia; Brett Clementz, University of Georgia; Jennifer McDowell, University of Georgia

3:35 p.m. Floor Discussion

40 CC-West 223

Recent Advances in Statistical Methods for Genome-Wide Association Studies—Contributed

Section on Statistics in Genomics and Genetics, SSC

Chair(s): Josh Barback, Harvard T. H. Chan School of Public Health

2:05 p.m. Brawn and Brains: a Robust and Powerful Approach to X-Inclusive Whole-Genome Association Studies—✦Bo Chen, University of Toronto; Lei Sun, University of Toronto; Radu V Craiu, University of Toronto

2:20 p.m. Literature-Guided Integration of Multiple GWAS Results Using Graph-GPA and DDNet—✦Dongjun Chung, Medical University of South Carolina; Hang J. Kim, University of Cincinnati; Zhenning Yu, Medical University of South Carolina; Andrew B Lawson, Medical University of South Carolina ; Hongyu Zhao, Yale

2:35 p.m. Cauchy Combination Test: a Powerful Test with Analytic P-Value Calculation Under Arbitrary Dependency Structures—✦Yaowu Liu, Harvard School of Public Health; Jun Xie, Purdue University; Xihong Lin, Harvard University

2:50 p.m. Leveraging Surrogate Phenotypes to Improve Inference on a Partially Missing Target Phenotype—✦Zachary McCaw, Harvard School of Public Health; Xihong Lin, Harvard University

3:05 p.m. A Genetic Association Test Robust to Arbitrary Population Structure—✦Minsun Song, Sookmyung Women's University

3:20 p.m. A Model-Based Clustering to Identify Disease-Associated SNPs—✦Yan Xu, University of Victoria; Xuekui Zhang, University of Victoria; Weiliang Qiu, Brigham and Women's Hosptial/Harvard Medical School

3:35 p.m. Floor Discussion

41 CC-East 17

Advances in Sampling Techniques and Tools—Contributed

Survey Research Methods Section

Chair(s): Brady T. West, University of Michigan

2:05 p.m. Probability-Proportional-To-Size Ranked Set Sampling from Stratified Populations—✦Omer Ozturk, Ohio State University

2:20 p.m. Using Longitudinal Weights in Analyzing Panel Data—✦Hans Walter Steinhauer, Leibniz Institute for Educational Trajectories; Sabine Zinn, Leibniz Institute for Educational Trajectories

2:35 p.m. A Sampling Design for an Ordered Population—✦Xiaofei Zhang, Iowa State Univ; Wayne Fuller, Iowa State University

2:50 p.m. An Integration of Systematic Probability Proportional to Size and Random Group Sampling Designs—✦Avinash C. Singh, American Institutes for Research; Cong Ye, American Institutes for Research

3:05 p.m. Preferential Recruitment Modeling for Respondent-Driven Sampling—✦Katherine McLaughlin, Oregon State University

3:20 p.m. Ratio of Vector Lengths as an Indicator of Sample Representativeness for a Multipurpose Survey—✦Hee-Choon Shin, CDC/NCHS

3:35 p.m. Dealing with Inaccurate Measures of Size in Two-Stage Probability Proportional to Size Sample Designs in African Household Surveys—✦Graham Kalton, Westat; Ismael Flores Cervantes, Westat; Carlos Arieira, Westat; Mike Kwanisai, Westat; Jehun Kim, Westat; Elizabeth Radin, ICAP at Columbia University; Suzue Saito, ICAP at Columbia University; Anindya De, U.S. Centers for Disease Control and Prevention; Stephen McCracken, U.S. Centers for Disease Control and Prevention; Paul Stupp, U.S. Centers for Disease Control and Prevention

Special Presentation 4:00 p.m.—5:50 p.m.

42 CC-West 301

Introductory Overview Lecture: Examining What and How We Teach at All Levels: Key Ideas to Ensure the Progress and Relevance of Statistics—Invited

JSM Partner Societies

Organizer(s): Rebecca Nugent, Carnegie Mellon University

Chair(s): Mine Cetinkaya-Rundel, Duke University

4:05 p.m. Introductory Statistics in a World of Data Science: Where We Are and Where We Need to Head—✦Nicholas J. Horton, Amherst College

4:35 p.m. Evolution of the Undergraduate Statistics Program—✦Rebecca Nugent, Carnegie Mellon University

5:05 p.m. Future of PhD Statistics/Biostatistics Education—✦Daniela Witten, University of Washington

5:35 p.m. Floor Discussion

Invited Sessions 4:00 p.m.—5:50 p.m.

43 CC-West 304/305

■ ● Discovering Homology in Multi-View Data: New Statistical Methods for Data Integration—Invited

ENAR, Section on Statistical Learning and Data Science, Biometrics Section

Organizer(s): Irina Gaynanova, Texas A&M University

Chair(s): Irina Gaynanova, Texas A&M University

4:05 p.m. Clustering Multiple-View Data: Are Two Clusterings Independent?—✦Lucy Gao, University of Washington; Jacob Bien, University of Southern California; Daniela Witten, University of Washington

4:30 p.m. Angle Based Joint and Individual Variation Explained—J. S. (Steve) Marron, University of North Carolina; ✦Jan Hannig, University of North Carolina; Meilei Jiang, University of North Carolina; Qing Feng, Uber

4:55 p.m. Integrated Reduced-Rank Models with Multiple Sets of Predictors—✦Gen Li, Columbia University; Kun Chen, University of Connecticut

5:20 p.m. Joint Modeling of Multi-System Wearable Data—✦Vadim Zipunnikov, Johns Hopkins Bloomberg School of Public Health; Junrui Di, Johns Hopkins Bloomberg School of Public Health

5:45 p.m. Floor Discussion

44 CC-West 306

■ ● Innovative Clinical Trial Designs and Analytic Methods in Neuroscience—Invited

Biopharmaceutical Section, ENAR, Biometrics Section

Organizer(s): Pilar Lim, PhD, Janssen Research & Development, LLC

Chair(s): Pilar Lim, PhD, Janssen Research & Development, LLC

4:05 p.m. New Developments with the Sequential Parallel Comparison Design—✦Gheorghe Doros, Boston University; Denis Rybin, Pfizer, Inc

4:25 p.m. Missing Data Issues in the Studies of Neurodegenerative Disorders: The Methodology—✦Sheng Luo, Duke University Medical Center; Kan Li, University of Texas Health Science Center

4:45 p.m. Using Delayed Start Design and Analysis to Investigate Potential Disease Modifying Effects in Alzheimer's Disease—Hong Liu-Seifert, Eli Lilly and Company; ✦Scott Andersen, Eli Lilly and Company

5:05 p.m. Practical Bayesian Modeling and Subgroup Inference in Alzheimer's Drug Development—Brad Carlin, University of Minnesota; ✦Patrick Schnell, Ohio State University; Mark Fiecas, University of Minnesota; Peter M¸ller, University of Texas Austin; Qi Tang, Sanofi; Walter Offen, AbbVie

5:25 p.m. Disc: Hsien-Ming James Hung, PhD, Food and Drug Administration

5:45 p.m. Floor Discussion

45 CC-West 224

■ ● Statistical Models for Estimating and Testing Causal Effects in Biomedical Studies—Invited

Section on Statistics in Epidemiology, Section on Statistics in Genomics and Genetics, Caucus for Women in Statistics

Organizer(s): Shili Lin, The Ohio State University

Chair(s): Shili Lin, The Ohio State University

4:05 p.m. Tilted Covariate and Mediator Balancing—✦Kwun Chuen Gary Chan, University of Washington

4:30 p.m. Hypothesis Tests of Mediation Under a Composite Null Hypothesis—✦Yen-Tsung Huang, Academia Sinica

4:55 p.m. Understanding Associations Among Multi-Omic Data via Integrative Modeling—✦Asuman Seda Turkmen, The Ohio State University; Hancong Tang, The Ohio State University; Shili Lin, The Ohio State University

5:20 p.m. Causal Organic Direct and Indirect Effects: Closer to Baron and Kenny—✦Judith Lok, Harvard T.H. Chan School of Public Health

5:45 p.m. Floor Discussion

46 CC-West 121

■ ● Recent Advances in Cluster Analysis and Cluster Validation—Invited

Section on Statistical Learning and Data Science, SSC

Organizer(s): Daniel Fernandez, Victoria University of Wellington

Chair(s): Alexander Foss, Sandia National Laboratories

4:05 p.m. Clustering Longitudinal Data Using Mixture Models—✦Paul McNicholas, McMaster University

4:30 p.m. Clustering with Topic Models—✦David Banks, Duke University

4:55 p.m. Think Before You Cluster: Testing for Clusterability—✦Naomi Brownstein, Florida State University; Margareta Ackerman, Santa Clara University; Andreas Adolfsson, Santa Clara University; Zachariah Neville, Florida State University

5:20 p.m. Cluster Validation by Measurement of Clustering Characteristics Relevant to the User—✦Christian Hennig, University College London

5:45 p.m. Floor Discussion

47 CC-East 10

■ ● Statistical Analysis of Linked Data—Invited

Survey Research Methods Section, Section on Bayesian Statistical Science, Section on Statistical Learning and Data Science, Caucus for Women in Statistics, Social Statistics Section

Organizer(s): Ying Han, University of Maryland, College Park; Partha Lahiri, University of Maryland, College Park

Chair(s): Daniel Bonnery, University of Maryland

4:05 p.m. Outlier Robust Inference Using Probabilistically Linked Data—Nicola Salvati, University of Pisa; Suojin Wang, Texas A&M University; Enrico Fabrizi, Catholic University of Sacro Cuore; ✦Raymond Chambers, University of Wollongong

4:30 p.m. Entity Resolution with Societal Impacts in Statistical Machine Learning—✦Rebecca C. Steorts, Duke University

4:55 p.m. A Bayesian Approach for Deduplication, Record Linkage, and Inference with Linked Data—✦brunero liseo, Sapienza Universit‡ di Roma; Andrea Tancredi, Sapienza Universit‡ di Roma; Rebecca C. Steorts, Duke University

5:20 p.m. Disc: Mauricio Sadinle, University of Washington

5:45 p.m. Floor Discussion

48 CC-West 109

■ Longitudinal Modeling and Experimental Design for Investigating†Host Associated Microbiota—Invited

IMS, Section on Statistics in Genomics and Genetics, Biometrics Section

Organizer(s): Justin D Silverman, Duke University

Chair(s): Lawrence A David, Duke University

4:05 p.m. Nonparametric Analyses of Longitudinal Perturbation Data from the Human Microbiome—✦Susan Holmes, Statistics

4:25 p.m. A Microbial Interdependence Association Test in Longitudinal Study—✦Huilin Li, New York University; Yilong Zhang, Merck Research Laboratories; Sung Won Han, Korea University; Laura Cox, Brigham and Women's Hospital and Harvard Medical School

4:45 p.m. Predictive and Interpretable Bayesian Machine Learning Models for Understanding Microbiome Dynamics—✦Georg Kurt Gerber, Harvard Medical School / Brigham and Women's Hospital

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

5:05 p.m. Quantifying and Controlling for Sources of Technical Variation and Bias in Longitudinal Microbiome Surveys—✦Justin D Silverman, Duke University; Heather Durand, Duke University; Sayan Mukherjee, Duke University; Lawrence A David, Duke University

5:25 p.m. Incorporating Host Genomics Data and Microbial Network Inference—✦Richard Bonneau, NYU Center for Data Science & Simons Foundation

5:45 p.m. Floor Discussion

49 CC-West 213

■ ● Skills to Leverage and Gaps to Fill to Thrive in Data Science—Invited

Section on Statistical Consulting, Committee on Applied Statisticians, Section on Statistical Learning and Data Science, SSC, Quality and Productivity Section

Organizer(s): Eric Vance, LISA-University of Colorado Boulder

Chair(s): James L Rosenberger, NISS (National Institute of Statistical Sciences) and Penn State

4:05 p.m. Communication and Collaboration Skills for the Era of Data Science—✦Eric Vance, LISA-University of Colorado Boulder

4:30 p.m. From Academia to Industry: Statistical Skills That Translate—✦Olivia Lau, Google

4:55 p.m. What Statisticians Need to Know to Work in Tech—✦Michael Brundage, Google, Inc.

5:20 p.m. Reproducible Research: Why It's Essential and How Statisticians Can Do It—✦Courtney Karin Soderberg, Center for Open Science

5:45 p.m. Floor Discussion

50 CC-West 122

■ Which Sessions Should This Go To? Text Analytics to the Rescue of Conference Committees—Invited

Section on Statistical Computing, Section on Statistical Learning and Data Science, Stats. Partnerships Among Academe Indust. & Govt. Committee

Organizer(s): Stas Kolenikov, Abt Associates

Chair(s): Jeffrey Gonzalez, Bureau of Labor Statistics

4:05 p.m. Text Mining Using Discrete Optimization—Jason Pan, Pfizer Inc; ✦Kelly H Zou, Pfizer Inc; Ching-Ray Yu, Pfizer Inc

4:30 p.m. Creating a Taxonomy of Statistical Methods Using Text Analysis—✦Wendy L Martinez, Bureau of Labor Statistics

4:55 p.m. Identifying and Utilizing Research Topics in Conference Abstracts—✦Stas Kolenikov, Abt Associates; Alison Thaung, Abt Associates

5:20 p.m. Disc: Julia D Silge, Stack Overflow

5:45 p.m. Floor Discussion

51 CC-West 214

■ ● EHR Data + X: Expanding the Reach of EHR Data Through Data Integration—Invited

Biometrics Section, Health Policy Statistics Section, Section on Statistics in Epidemiology

Organizer(s): Yong Chen, University of Pennsylvania

Chair(s): Rui Duan, University of Pennsylvania

4:05 p.m. Perils and Possibilities of EHR Data Linked to Population Disease Registries: The Example of Cancer Registry Linkage—✦Rebecca Hubbard, University of Pennsylvania

4:30 p.m. Integrating Observational Data with Prior Knowledge: Wikipedia-Informed Priors for Predicting Health Outcomes—✦Martijn Jeroen Schuemie, Janssen R&D

4:55 p.m. Methods to Utilize Longitudinal EHR and Address Data Connected to the Built Environment to Assess If Moving to a Different Environment Affects Health—✦Jennifer Bobb, Kaiser Permanente Washington Health Research Institute; Andrea J. Cook, Kaiser Permanente Washington Health Research Institute

5:20 p.m. Risk Prediction Through Temporal Phenotyping and Incorporation of MedDRA Information—✦Yong Chen, University of Pennsylvania; Rui Duan, University of Pennsylvania

5:45 p.m. Floor Discussion

52 CC-West 206/207

■ ● Intergovernmental Panel on Climate Change (IPCC) Reports: How Statisticians Can Get Involved—Invited

ASA Advisory Committee on Climate Change Policy

Organizer(s): Dorit Hammerling, National Center for Atmospheric Research

Chair(s): Dorit Hammerling, National Center for Atmospheric Research

4:05 p.m. The Intergovernmental Panel on Climate Change (IPCC) and the Role of Statisticians—✦Francis William Zwiers, Pacific Climate Impacts Consortium, University of Victoria

4:30 p.m. Lessons Learned from Interdisciplinary Research Between Statistics and Climate Sciences—✦Claudia Tebaldi, NCAR

4:55 p.m. Applications of Extreme Value Methods in the IPCC and US National Assessment Reports—✦Michael F Wehner, Lawrence Berkeley National Laboratory

5:20 p.m. Disc: Richard Smith, Statistical Applied Mathematical Sciences Institute

5:45 p.m. Floor Discussion

53 CC-West 120

Statistics and the Practice of Forensics—Invited

Advisory Committee on Forensic Science, Committee on Law and Justice Statistics, Government Statistics Section

Organizer(s): Guillermo Basulto-Elias, Iowa State University

Chair(s): Alicia Carriquiry, Iowa State University

4:05 p.m. An Absolute Certainty: The General Scientific Community's Critical Role in Ensuring Justice—✦Peter Neufeld, Innocence Project

4:30 p.m. The Importance of Statistics in Distinguishing Opinion, Relevance, and Demonstrably Sufficient Science—✦Karen Kafadar, University of Virginia

4:55 p.m. Validating Science in an Open-Source Approach to Forensic Statistics: Algorithms, Data and Results—✦Heike Hofmann, Iowa State University

5:20 p.m. Track Forensic Science Reform from a Journalist's Perspective—✦Spencer S Hsu, The Washington Post

5:45 p.m. Floor Discussion

Invited Panels 4:00 p.m.—5:50 p.m.

54 CC-West Ballroom A

The Good, the Bad, and the Ugly: The Future of Statistics and the Public—Invited

International Statistical Institute, Government Statistics Section, Social Statistics Section, Survey Research Methods Section, SSC, Social Statistics Section

Organizer(s): Liberty Vittert, University of Glasgow; Regina Nuzzo, Gallaudet University; John Bailer, Miami University

Chair(s): Liberty Vittert, University of Glasgow

Panelists: ✦David Spiegelhalter, Royal Statistical Society

✦Guest Journalist, Fox News Channel

✦Dan Wagner, Civis Analytics

✦Richard Coffin, USAFacts

✦Mark Hansen, Columbia University & David and Helen Gurley Brown Institute for Media Innovation

✦Scott Tranter, 0ptimus Consulting

5:40 p.m. Floor Discussion

Topic Contributed Sessions 4:00 p.m.—5:50 p.m.

55 CC-East 16

■ ● Non-Proportional Hazards in Clinical Trials: Challenges and Opportunities—Topic Contributed

Section on Statistical Graphics, Biopharmaceutical Section, International Society for Clinical Biostatistics, ENAR

Organizer(s): Junshan Qiu, FDA/CDER

Chair(s): Junshan Qiu, FDA/CDER

4:05 p.m. Kaplan-Meier Based Methods to Address Non-Proportional Hazard Issues—✦Bo Huang, Pfizer Inc.

4:25 p.m. Design and Analysis of Survival Trials with Treatment Crossover—✦Xiaodong Luo, Sanofi

4:45 p.m. Case Studies of Non-Proportional Hazards in Oncology and Hematology Trials—✦Jingjing Ye, FDA

5:05 p.m. Design and Analysis of Cancer Immunotherapy Trials with Potential Violation of Proportional Hazards Assumption—✦Xiaofei Wang, Duke University School of Medicine; Guangyu Yang , University of Michigan

5:25 p.m. Disc: Rajeshwari Sridhara, US Food and Drug Adminstration

5:45 p.m. Floor Discussion

56 CC-West 114

■ ● Novel Statistical Methods for Variable Selection with Applications—Topic Contributed

Section on Nonparametric Statistics, Biometrics Section, International Chinese Statistical Association, SSC

Organizer(s): Xiangrong Yin, University of Kentucky

Chair(s): Xiangrong Yin, University of Kentucky

4:05 p.m. Weak Signals in High-Dimension Regression: Detection, Estimation and Prediction—✦Yi Li,

4:25 p.m. Partial Least Square: Theoretical Results for the Chemometrics Use of PLS—✦Liliana Forzani, FACULTAD DE INGENIERIA QUIMICA; Dennis Cook, School of Statistics

4:45 p.m. Sufficient Dimension Folding for Regressions with Matrix- or Array-Valued Predictors—✦Wenhui Sheng,

5:05 p.m. Nonlinear Multivariate Functional PCA—✦Jun Song, UNC Charlotte; Bing Li, The Pennsylvania State University

5:25 p.m. Variable Selection in Semiparametric Transformation Cure Models with Right-Censored Data—✦Wenyan Zhong,

5:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

57 CC-West 110

■ ● Developments in Bayesian Spatial and Spatio-Temporal Modeling of Small Area Health Data—Topic Contributed

Section on Bayesian Statistical Science, Survey Research Methods Section

Organizer(s): Andrew B Lawson, Medical University of South Carolina

Chair(s): Dipankar Bandyopadhyay, Virginia Commonwealth University

4:05 p.m. Spatio-Temporal Models for Big Multinomial Data Using the Conditional Multivariate Logit-Beta Distribution—✦Scott H. Holan, University of Missouri/U.S. Census Bureau; Jonathan R Bradley, Florida State University; Christopher K. Wikle, University of Missouri

4:25 p.m. Spatial Bayesian Fusing Models for Sparse Networks and Health Risk—✦Andrew B Lawson, Medical University of South Carolina ; Raymond Boaz, Medical University of South Carolina

4:45 p.m. Age-Specific Distributed Lag Models for Assessing the Impact of Heat on Health—✦Matthew Heaton, Brigham Young University; Cassandra Olenick, National Center for Atmospheric Research

5:05 p.m. A Spatiotemporal Recommendation Engine for Malaria Control—✦Qian Guan, North Carolina State University; Brian Reich, North Carolina State University; Eric Laber, North Carlina State University

5:25 p.m. Estimating the Changing Nature of Scotland's Health Inequalities Using a Multivariate Spatio-Temporal Model—✦Eilidh Jack, University of Glasgow; Duncan Lee, University of Glasgow; Nema Dean, University of Glasgow

5:45 p.m. Floor Discussion

58 CC-East 19

■ ● Leading the Dance with Dirty Data—Topic Contributed

Government Statistics Section

Organizer(s): Darcy Miller, National Agricultural Statistics Service

Chair(s): Andreea Erciulescu, National Institute of Statistical Sciences

4:05 p.m. A Two Step with Perceptions of Dirty Data—✦Elizabeth Keiffer, University of Arkansas

4:25 p.m. Dancing with the Software: Selecting Your Imputation Partner—✦Andrew Dau, USDA/NASS; Darcy Miller, National Agricultural Statistics Service

4:45 p.m. Dancing with a New Partner: Imputing New Demographic Questions on the Census of Agriculture Using COTS Software—✦Darcy Miller, National Agricultural Statistics Service; Virginia Harris, National Agricultural Statistics Service; Jeff Beranek, National Agricultural Statistics Service; Steve Logan, National Agricultural Statistics Service

5:05 p.m. Multiple Imputation of Missing Income Data for the Redesigned National Health Interview Survey—✦Guangyu Zhang, National Center for Health Statistics; Yulei He, CDC/NCHS; Pavlina Rumcheva, National Center for Health Statistics ; Aaron Maitland, National Center for Health Statistics ; Suresh Srinivasan, National Center for Health Statistics ; Alain Moluh, NCHS; Matthew Bramlett, NCHS; Chris Moriarity, National Center for Health Statistics; Tina Norris, NCHS

5:25 p.m. Disc: Phil Kott, RTI

5:45 p.m. Floor Discussion

59 CC-East 9

■ ● Novel Population Model to Project the Health Impact of the Use of Tobacco Products in the United States—Topic Contributed

Social Statistics Section, Health Policy Statistics Section

Organizer(s): Antonio Paredes, US Food and Drug Administration Center for Tobacco Products

Chair(s): Antonio Paredes, US Food and Drug Administration Center for Tobacco Products

4:05 p.m. Modeling and Simulation Strategies in Tobacco Regulatory Science—✦George Rochester, FDA Center for Tobacco Products

4:25 p.m. Case Study of Modeling and Simulation in Tobacco Regulation—✦Esther Salazar, U.S. Food and Drug Administration

4:45 p.m. A System Dynamics Model for Tobacco Research—✦Minh Huynh, Impaq International, LLC; Aaron Heuser, IMPAQ International, LLC; Chris Zhang, IMPAQ International LLC; Hautahi Kingi, IMPAQ International LLC; Antonio Paredes, US Food and Drug Administration Center for Tobacco Products; George Rochester, FDA Center for Tobacco Products

5:05 p.m. Probabilistic Analysis of Modified Risk Tobacco Product Effects on Population Health—✦Bill Poland, Certara; Sylvain Larroque, JT International SA

5:25 p.m. Models for Sensory Discrimination with Application to Tobacco Regulatory Science—✦Ghideon Solomon, FDA; George Rochester, FDA Center for Tobacco Products

5:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

60 CC-West 212

■ ● Real World Evidence in Regulatory Decision Making: Past, Current and Future?—Topic Contributed

Health Policy Statistics Section

Organizer(s): Kun Chen, AbbVie Inc

Chair(s): Kun Chen, AbbVie Inc

4:05 p.m.	Reporting to Improve Reproducibility and Facilitate Validity Assessment for Healthcare Database Studies—✦Shirley Wang,
4:25 p.m.	A Glimpse into Industry Experience with RWE to Transform Pharmaceutical Research and Development—✦James Harnett,
4:45 p.m.	Real World Evidence Demonstration Projects and Policy Development at FDA—✦Diqiong Xie, FDA; David Barrett Martin, FDA CDER OMP
5:05 p.m.	Disc: Frank W Rockhold, Duke University
5:25 p.m.	Disc: Carrie Bennette, Flatiron Health
5:45 p.m.	Floor Discussion

61 CC-East 14

Statistical Analysis of Complex-Valued MRI—Topic Contributed

Section on Statistics in Imaging, SSC

Organizer(s): John Kornak, University of California, San Francisco

Chair(s): William Franz Lamberti, George Mason University

4:05 p.m.	Simulation of fMRI Data, a Complex-Valued Representation—✦Kevin Liu, Marquette University; Daniel Rowe, Marquette University
4:25 p.m.	Bayesian Image Analysis in Fourier Space for MRI Data—✦John Kornak, University of California, San Francisco; Karl Young, University of California, San Francisco (retired)
4:45 p.m.	Statistical Impacts of Reconstruction Method in Simultaneous Multislice Acquisition of fMRI†—✦Benjamin Risk, Emory University; Mary Kociuba, University of Washington; Daniel Rowe, Marquette University
5:05 p.m.	Bayesian Spatial Modeling via Kernel Convolutions on Complex-Valued fMRI Signals—✦Cheng-Han Yu, UC Santa Cruz; Raquel Prado, University of California Santa Cruz, Baskin School of Engineering
5:25 p.m.	The Past, Present, and Future of Complex-Valued fMRI Activation—✦Daniel Rowe, Marquette University
5:45 p.m.	Floor Discussion

62 CC-West 205

■ Modeling and Inference Using Stochastic Differential Equations—Topic Contributed

Section on Statistics and the Environment

Organizer(s): Ephraim Hanks, The Pennsylvania State University

Chair(s): Ephraim Hanks, The Pennsylvania State University

4:05 p.m.	Maximum Likelihood Estimation for Stochastic Differential Equations Using Sequential Gaussian-Process-Based Optimization—✦Peter Craigmile, The Ohio State University; Grant Schneider, Upstart Network; Radu Herbei, The Ohio State University
4:25 p.m.	Statistical Inference for Multivariate Stochastic Differential Equations via Data Imputation—✦Ge Liu, Ohio State University; Peter Craigmile, The Ohio State University; Radu Herbei, The Ohio State University
4:45 p.m.	Inferring Interacting Dynamics on a Curved Surface with Data from Nano-Scale Microscopy—✦John Fricks, Arizona State University
5:05 p.m.	Statistical Modeling of Disease in Ecological Communities Using Partial Differential Equations—✦Trevor Hefley, Kansas State University; Haoyu Zhang, Kansas State University; Robin Russell, United States Geological Survey; Anne Ballmann, United States Geological Survey
5:25 p.m.	Stochastic Differential Equation to Model Movement Data in Ecology—✦Marie-Pierre Etienne,
5:45 p.m.	Floor Discussion

63 CC-West 215/216

■ Omics Data: Study Design, Power and Sample Size—Topic Contributed

Section on Statistics in Genomics and Genetics, SSC

Organizer(s): Kwang-Youn Kim, Northwestern University

Chair(s): Jungwha "Julia" Lee, Northwestern University

4:05 p.m.	Power Analysis for RNA-Seq in Single Cells—✦Zhijin Wu, Brown University; Hao Wu, Emory University
4:25 p.m.	Multivariate FDR Control for Omics Data Integration—✦Ali Shojaie, University of Washington; Kasra Alishahi, Sharif University of Technology; Ahmad Reza Ehyaee, Sharif University of Technology
4:45 p.m.	Sample Size and Power Analysis for RNA-Seq Differential Expression in Paired Study Designs—✦Masha Kocherginsky, Northwestern University; Kwang-Youn Kim, Northwestern University ; Daniela E Matei, Northwestern University
5:05 p.m.	Power Calculation and Shrinkage in High-Throughput Screening Studies—✦Noah Simon, University of Washington
5:25 p.m.	Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

64 CC-West 117

● BandE Student Paper Awards—Topic Contributed

Business and Economic Statistics Section

Organizer(s): David Matteson, Cornell University

Chair(s): Sumanta Basu, Cornell University

4:05 p.m. Partial Distance Correlation Screening for High-Dimensional Time Series—✦Kashif Yousuf, Columbia University; Yang Feng, Columbia University

4:25 p.m. Nonparametric Estimation of Sufficient Forecasting Using High-Dimensional Predictors—✦Xiufan Yu, Penn State University; Jiawei Yao, Citadel LLC; Lingzhou Xue, Penn State University and National Institute of Statistical Sciences

4:45 p.m. Dynamic Shrinkage Processes—✦Daniel R Kowal, Rice University; David Matteson, Cornell University; David Ruppert, Cornell University

5:05 p.m. The Convex Mixture Transition Distribution: Granger Causality Networks for Categorical Time Series—✦Alex Tank, ; Emily Fox, University of Washington; Ali Shojaie, University of Washington

5:25 p.m. Disc: Peter Zadrozny, BLS

5:45 p.m. Floor Discussion

65 CC-West 210

■ New-Generation Experimental Design and Causal Inference in High-Tech Companies—Topic Contributed

Quality and Productivity Section, Section on Physical and Engineering Sciences

Organizer(s): Tirthankar Dasgupta, Rutgers University

Chair(s): Vijay Nair, University of Michigan

4:05 p.m. Two Tales from A/B Testing: The M Error and Partial Identification in Factorial Designs—✦Jiannan Lu, Microsoft; Yixuan Qiu, Purdue University; Alex Deng, Microsoft Corporation

4:25 p.m. Causal Inference Applications in Google Search Ads—✦Jeffrey Moulton, Google; Valeria Espinosa, Google

4:45 p.m. Randomized Experiments on Amazon's Supply Chain—✦David Afshartous, Amazon; Luke Smith, Amazon

5:05 p.m. LinkedIn Feed Optimization—✦Souvik Ghosh, LinkedIn

5:25 p.m. Disc: Tirthankar Dasgupta, Rutgers University

5:45 p.m. Floor Discussion

66 CC-West 221

■ Higlights from the Journal Stat—Topic Contributed

International Statistical Institute

Organizer(s): John E Kolassa, Rutgers, the State University of New Jersey

Chair(s): Harry Crane, Rutgers

4:05 p.m. Adaptively-Tuned Particle Swarm Optimization with Application to Spatial Design—✦Matthew Simpson, University of Missouri; Christopher K. Wikle, University of Missouri; Scott H. Holan, University of Missouri/U.S. Census Bureau

4:25 p.m. Linear Structural Equation Models with Non-Gaussian Errors—✦Y. Samuel Wang, University of Washington

4:45 p.m. A Procedure to Detect General Association Based on Concentration of Ranks—✦Fred Wright, North Carolina State University; Pratyaydipta Rudra, University of Colorado at Denver; Yi-Hui Zhou, North Carolina State University

5:05 p.m. Robust Nonparametric Tests for Imaging Databased on Data Depth—✦Sara Lopez-Pintado, Columbia University; Julia Wrobel, Columbia University

5:25 p.m. Disc: John E Kolassa, Rutgers, the State University of New Jersey

5:45 p.m. Floor Discussion

Topic Contributed Panels 4:00 p.m.—5:50 p.m.

67 CC-West 118

■ ● Statistics Education for Future Military Leaders—Topic Contributed

Section on Statistics in Defense and National Security, Section on Statistical Education

Organizer(s): Matthew Hawks, US Naval Academy

Chair(s): Matthew Hawks, US Naval Academy

Panelists: ✦Robert Koyak, Naval Postgraduate School

✦Kenneth Horton, US Air Force Academy

✦David Ruth, US Naval Academy

✦Andrew Geyer, Air Force Institute of Technology

5:40 p.m. Floor Discussion

Contributed Sessions 4:00 p.m.—5:50 p.m.

68 CC-West 218

■ Personalized/Precision Medicine I—Contributed

Biometrics Section

Chair(s): Jia Jia, AbbVie

4:05 p.m. Adjusting a Subject-Specific Timing of Event in Longitudinal Studies—✦Hyunkeun Cho, University of Iowa; Seonjin Kim, Miami University; Myunghee Lee, Weill Cornell Medical College

4:20 p.m. Point and Interval Estimations for Individualized MCID—✦Jiwei Zhao, State University of New York At Buffalo

4:35 p.m. Two-Stage Enrichment Clinical Trial Design with Adjustment for Misclassification in Predictive Biomarkers—✦Yong Lin, Rutgers, The State University of New Jersey; Weichung Joe Shih, Rutgers University; Shou-En Lu, Rutgers University

4:50 p.m. Spatial Statistics Approach to Develop Novel Protein Cancer Biomarkers—✦Inna Chervoneva, Thomas Jefferson University

5:05 p.m. Precision Medicine in Dynamic-Time Systems—✦Michael Lawson,

5:20 p.m. Learning-Based Search for Individualized Screening Rules to Optimize Clinical Outcomes—✦Yanqing Wang, Fred Hutchinson Cancer Research Center; Yingqi Zhao, Fred Hutchinson Cancer Research Center; Yingye Zheng, Fred Hutchinson Cancer Research Center

5:35 p.m. Floor Discussion

69 CC-West 219

■ Longitudinal/Correlated Data II—Contributed

Biometrics Section

Chair(s): Jen-hwa Chu, Yale University School of Medicine

4:05 p.m. Robust Modeling of Survival Curves in the Presence of Time-Varying Effects—✦Jorne Biccler, Aalborg University Hospital; Tim Verdonck, KU Leuven; Stefan Van Aelst, KU Leuven; Martin B¯gsted, Aalborg University

4:20 p.m. Symptom Clusters as a Visualization and Discovery Tool for Longitudinal Oncological Data—✦Stephanie Van Der Pas, Leiden University; Marta Fiocco, Leiden University

4:35 p.m. Marginal Analysis of Ordinal Clustered Longitudinal Data with Informative Cluster Size—✦Aya A Mitani, Boston University ; Elizabeth K Kaye, Boston University; Kerrie P Nelson, Boston University

4:50 p.m. Model Based Clustering via Copula and Applications—✦Marta Nai Ruscone, LIUC

5:05 p.m. A Bayesian Nonparametric Model for Predicting Disease Status Using Longitudinal Profiles—✦Jeremy Gaskins, University of Louisville

5:20 p.m. Bayesian Multivariate Longitudinal Models for Bariatric Surgery Outcomes—✦Heidi Fischer, Kaiser Permanente Southern California; Karen Coleman, Kaiser Permanente Southern California; Robert Weiss, UCLA; Stephen Derose, Kaiser Permanente Southern California; Allon Friedman, Indiana University School of Medicine; David H. Smith, Kaiser Permanente Center for Health Research; Talha Imam, Kaiser Permanente Southern California

5:35 p.m. Generalized Linear Models with Multiple Longitudinal Covariate Processes—✦Erning Li, University of Iowa

70 CC-West 116

Nonlinearites and Information—Contributed

Business and Economic Statistics Section

Chair(s): Somak Dutta, Iowa State University

4:05 p.m. Estimation of Dynamic Conditional Correlation Matrices by a Nonlinear Common Factor Model—✦Craig Rolling, Saint Louis University; Yongli Zhang, Independent Researcher; Yuhong Yang, University of Minnesota

4:20 p.m. Bootstrap Procedures for Detecting Multiple Persistence Shifts in a Heteroskedastic Time Series—✦Mohitosh Kejriwal, Purdue University; Xuewen Yu, Purdue University

4:35 p.m. A Time Series Analysis of Global Temperature Anomaly—✦Seong-Tae Kim, NC A&T State Univ; Man Sik Park, Sungshin Women's University; Jaime Henderson, NC A&T State University

4:50 p.m. Time Series Analysis Based on Gini: a Test for Reversibility—✦Amit Shelef, Sapir Academic College; Edna Schechtman, Ben Gurion Univ

5:05 p.m. A Spectral-Based Kolmogorov-Smirnov Method for Detecting the Information Loss of Temporal Aggregation—✦Bu Hyoung Lee, Loyola University Maryland

5:20 p.m. A Least Deviation Estimation Approach for Several Time Series Models—✦Silvey Shamsi, Ball State University; Mian Adnan, Indiana University Bloomington

5:35 p.m. Examining the Performance of Seasonality Diagnostics for Detecting Residual Seasonality—✦Osbert Pang, U.S. Census Bureau; Brian Monsell, U.S. Census Bureau; William Bell, U.S. Census Bureau

71 CC-West 202

Statistical Methods for Personalized Medicine—Contributed

Mental Health Statistics Section

Chair(s): Sara Algeri, Imperial College London

4:05 p.m. Quantification of Interlocking Pentagon Copying—✦Namhee Kim, Rush University Medical Center; Timothy Truty, Rush University Medical Center; Lisa L Barnes,

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Rush University Medical Center; David A Bennett, Rush University Medical Center; Melissa Lamar, Rush University Medical Center

4:20 p.m. A Gate-Keeping Test for Selecting Adaptive Interventions for Depression Management Under General SMART Designs—✦Xiaobo Zhong, Columbia University; Bin Cheng, Columbia University; Min Qian, Columbia University; Ying Kuen Ken Cheung, Columbia University

4:35 p.m. Q-Learning for Dynamic Treatment Regimes on CODIACS Vanguard Randomized Controlled Trial—✦Eun Jeong Oh, Columbia; Min Qian, Columbia University; Ying Kuen Ken Cheung, Columbia University

4:50 p.m. Inference and Optimal Design for Longitudinal Cluster-Randomized Clinical Trials Given a Small Number of Clusters with Application to a Serious Mental Illness Intervention Study—✦CHAE RYON KANG, University of Pittsburgh; DI ZHANG, University of Pittsburgh

5:05 p.m. A Single-Index Model with Multiple-Links—✦Hyung Park, Columbia University; Eva Petkova, NYU School of Medicine; Thaddeus Tarpey, Wright State University; Todd Ogden, Columbia University

5:20 p.m. Floor Discussion

72 CC-West 115

● Recent Advances in Nonparametric Statistical Methods II—Contributed

Section on Nonparametric Statistics

Chair(s): Yunan Wu, University of Minnesota

4:05 p.m. Adjustments of Mann-Whitney U-Statistics for Comparing Sojourn Time Distributions in Observational Studies When Transition Time Are Right Censored—✦Yichen Chen, University of Florida; Somnath Datta, University of Florida

4:20 p.m. Asymptotics of Generalized Depth-Based Scale Processes and Applications—✦Jin Wang, Northern Arizona University

4:35 p.m. Causal Estimands and Confidence Intervals Associated with Wilcoxon-Mann-Whitney Tests in Randomized Experiments—✦Michael Fay, National Institute of Allergy and Infectious Diseases; Erin Gabriel, Karolinska Institute; Joanna H Shih, National Cancer Institute; Dean Follmann, NIAID; Erica H Brittain, National Institute of Allergy and Infectious Diseases

4:50 p.m. Closure Properties of Classes of Multiple Testing Procedures—✦Georg Hahn,

5:05 p.m. Bi-S*-Concave Distribution—✦Nilanjana Laha, University of Washington; Jon A. Wellner, University of Washington

5:20 p.m. Propensity Score Stratification: Are We Doing it Wrong?—✦Roland Matsouaka, Duke University School of Medicine

5:35 p.m. Linear Errors-In-Variables Model Estimation Using the Phase Function—✦Michael Byrd, Southern Methodist University; Linh Nghiem, Southern Methodist University; Cornelis Potgieter, Southern Methodist University

73 CC-West 208

Data Driven Digital and Social Media Marketing—Contributed

Section on Statistics in Marketing, Business Analytics/Statistics Education Interest Group

Chair(s): Yichen Qin, University of Cincinnati

4:05 p.m. Understand the Impact of Video Game Marketing Spend: a Data Science Approach of Multi-Touch Attribution—✦Yushu Chai, Electronic Arts, Inc.; Chen Teel, Electronic Arts

4:20 p.m. The Strategy and Tactics of Search Advertising Business: Evidence from the Chinese E-Commerce Market—✦Min Li, California State University, Sacramento; Joseph Richards, California State University, Sacramento

4:35 p.m. Build-Your-Own Dashboards for Metric Choice—✦Peter Lenk, University of Michigan; Ofer Mintz, University of Sydney; Yakov Bart, Northeastern University; David Reibstein, University of Pennsylvania

4:50 p.m. Forecasting Accuracy of Topic Modeling Techniques for Online Reviews: a Benchmark Study—✦Yuan Cheng, Cornell University; Shawn Mankad, Cornell University

5:05 p.m. Practical Approaches to Performance Rankings—✦Alan Roshwalb, Ipsos; John Paul Vidmar, Ipsos Public Affairs; Robert Petrin, Ipsos Public Affairs

5:20 p.m. Paying for Privacy While Selling Your Data: a Discrete Choice Experiment—✦Zhouyu Wu, Cornell University

5:35 p.m. Floor Discussion

74 CC-West 203

■ Challenges and Approaches to Teaching Statistics in the Health Sciences—Contributed

Section on Teaching of Statistics in the Health Sciences

Chair(s): Kendra Schmid , University of Nebraska Medical Center

4:05 p.m. Why Don't They Get It? Teaching Levels of Measurement—✦Lana Ivanitskaya, Central Michigan University; Lawrence Fulton, Texas State University; Dmitry A. Erofeev, Central Michigan University

4:20 p.m. Helping New Healthcare Researchers to Consider Statistics Early—✦Nicole Herrera, Children's National Medical Center; Heather Gordish-Dressman, Children's National Medical Center; James Bost, Children's National Medical Center

4:35 p.m. Mixing Active Learning and Lecturing: Using Interactive Visualization as a Teaching Tool—✦Jessica Minnier, Oregon Health & Science University; Ted Laderas, Oregon Health & Science University

4:50 p.m. Effective Story Telling with Dynamic Data Visualizations—✦Ruth Hummel, SAS Institute, JMP Division; Mia Stephens, SAS Istitute, JMP Division

5:05 p.m. Overcoming Fears (My Own) Teaching Reproducible Research, Big Data and Data Mining in Nursing and Public Health Education—✦Melinda Higgins, Emory University

5:20 p.m. Statistical Significance: Time to Look Forward—✦Philip Sedgwick, St. George's, University of London

5:35 p.m. Floor Discussion

75 CC-West 222

● Clinical Trial Design-1—Contributed

Biopharmaceutical Section

Chair(s): Genming Shi, Bayer

4:05 p.m. The Win Ratio: What Is It?—✦Victoria Chang, AbbVie; Gaohong Dong, iStats Inc.; Marc Vandemeulebroecke, Novartis; Junshan Qiu, US Food and Drug Administration; Roland Matsouaka, Duke University School of Medicine; Di Li, Bristol-Myers Squibb Co.; David Hoaglin, University of Massachusetts Medical School

4:20 p.m. Sample Size and Power Calculation for Immuno-Oncology Clinical Trials—✦Binbing Yu, MedImmune, Inc.; Dongyue FU, MedImmune, Inc.; Hefei (Harry) Yang, MedImmune, Inc.

4:35 p.m. Bayesian Dose Selection Study Designs in the Development of Oncology Drugs—✦Hui Yang, Amgen Inc.; Haijun Ma, Amgen Inc; Zhao Yang, Amgen Inc; Qing Liu, Amgen Inc; Erik Rasmussen, Amgen Inc; Chunlei Ke, Biogen; Qi Jiang, Amgen

4:50 p.m. Clinical Trial Technologies for Precision Medicine: The Current State of the Art—✦Steven J Schwager, Medidata Solutions; Ruthanna Davi, Medidata Solutions; Therese Dolan, Medidata Solutions; Jeff Wiser, Medidata Solutions

5:05 p.m. A Hybrid Approach for Prediction of Event Times in Double-Blind Clinical Trials—✦Ming Zhu, Sanofi Pasteur; Yunnan Xu, Virginia Tech; Zheng Su, Deerfield Institute

5:20 p.m. MCP-Mod Based Quantitative Techniques for Decision Making Process in Phase II Dose-Finding Clinical Trials—✦Na Cai, Astellas; Annie Wang, Astellas Pharma; Michael Smith, Astellas

5:35 p.m. Novel Approach in Analyzing Difference in Binomial Proportions in Stratified Clinical Trials—✦Anindita Banerjee, Pfizer; Vivek Pradhan, Pfizer

76 CC-East 17

● Paradata for Adaptive Survey Designs and Other Applications—Contributed

Government Statistics Section, Survey Research Methods Section

Chair(s): Darcy Steeg Morris, U.S. Census Bureau

4:05 p.m. A Non-Response and Measurement Error Analysis for the National Survey of College Graduates—✦Kayla Varela, U.S. Census Bureau; Allison Zotti, U.S. Census Bureau; Kevin Tolliver, U.S. Census Bureau; Amanda Nagle, U.S. Census Bureau

4:20 p.m. Implementation of Adaptive Design on the MCBS—✦Christopher Ward, NORC at the University of Chicago; Felicia LeClere, NORC at the University of Chicago; Kari Carris, NORC at the University of Chicago; Stephen Cohen, NORC at the University of Chicago; Dean Resnick, NORC; Micah Sjoblom, NORC at the University of Chicago; Jennifer Vanicek, NORC at the University of Chicago; Ying Li, NORC at the University of Chicago

4:35 p.m. Adaptive Design in the National Immunization Survey-Teen Provider Record Check Phase—Xian Tao, NORC at the University of Chicago; Megha Revanam, NORC at the University of Chicago; Benjamin Skalland, NORC at the University of Chicago; Kirk Wolter, NORC at the University of Chicago; David Yankey, Centers for Disease Control and Prevention; Zhen Zhao, CDC; ✦Kennon Copeland, NORC at the University of Chicago

4:50 p.m. Developing Seamless Tools to Support Metrics for Adaptive Survey Designs—✦Stephen Cohen, NORC at the University of Chicago; Imad Lakhal, NORC; Zachary H Seeskin, NORC at the University of Chicago; Dean Resnick, NORC

5:05 p.m. Side Effect Reduction of Prior and Processed Information on Survey Design—✦Abdellatif Demnati, Independent Researcher

5:20 p.m. An Approach to Predict Final Yield Among Interim Cases—✦Rui Jiao, Westat; Andrea Piesse, Westat

5:35 p.m. They Spoke, We Listened: Reducing Respondent Burden Using Previously Reported Data—✦Emilola J. Abayomi, USDA National Agriculture Statistics Service

77 CC-West 223

Hypothesis Testing: Bayesian, Nonparametric and Likelihood Methods—Contributed

International Chinese Statistical Association

Chair(s): Yin Xia, Fudan University

4:05 p.m. Envelope-Based Sparse Partial Least Squares—✦Guangyu Zhu, University of British Columbia; Zhihua Su, University of Florida

4:20 p.m. Q-Value and Its Application in Dynamic Safety Monitoring—✦Hal Li, Merck Research Laboratories; William Wang, Merck Research Laboratories

4:35 p.m. Optimal Designs for Comparison of Response Surfaces—✦Mong-Na Lo Huang, National Sun Yat-Sen University; Tzu-Lung Yuan, National Sun Yat-sen University; Chi-Hsiang Chu, Kaohsiung Chang Gung Memorial Hospital

4:50 p.m. A Comparison of Tests for Inflated Zeros for Poisson Regression Models—✦Yi Tang,

5:05 p.m. Budget-Constrained Group Testing Designs for Prevalence Estimation—✦Shih-Hao Huang, Academia Sinica

5:20 p.m. A Score Test for Latent Class in Left-Censored Data Due to Detection Limit—✦Hua He, ; Wan Tang, School of Public Health and Tropic Medicine, Tulane University

5:35 p.m. A Pooling Strategy to Effectively Use Genotype Data in Quantitative Traits Genome-Wide Association Studies—✦Wei Zhang, BBB/DIPHR/NICHD; Aiyi Liu, BBB/DIPHR/NICHD; Paul S Albert, National Cancer Institute; Robert D Ashmead, Center for Statistical Research and Methodology, U.S. Census Bureau; Enrique F Schisterman, BBB/DIPHR/NICHD ; James L Mills, BBB/DIPHR/NICHD

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78 CC-West 112

Bayesian Generalized Linear Models for Medicine—Contributed

Section on Bayesian Statistical Science

Chair(s): Zehang Li, University of Washington

4:05 p.m. Bayesian Overlapping Group Lasso: An Application in Jointly Modeling Multiple Genetic Pathways with Several Common Genes Between—✦Sounak Chakraborty, University of Missouri, Columbia

4:20 p.m. DETECTING ADVERSE DRUG EFFECTS from PHARMACOVIGILANCE DATABASES—✦Yu Gao, University of Waterloo; Kun Liang, University of Waterloo

4:35 p.m. Bayesian Hierarchical Models and Influenza Modeling—✦Nehemias Ulloa, Iowa State University; Jarad Niemi, Iowa State University

4:50 p.m. A Time-Varying Joint Frailty-Copula Approach for Modeling Recurrent Events and a Terminal Event—✦Zheng Li, Penn State University; Ming Wang, Pennsylvania State University; Vernon M Chinchilli, Penn State College of Medicine

5:05 p.m. A Bayesian General Linear Modeling Approach to Cortical Surface fMRI Data Analysis—✦Yu Yue, Baruch College, CUNY; Amanda Mejia, Indiana University; David Bolin, Gothenburg University; Finn Lindgren, The University of Edinburgh; Martin A Lindquist, Johns Hopkins University

5:20 p.m. Characterization of Critically Ill Patients Using the Profile Counts of Laboratory Tests and Medications—✦Eduardo PhD Antonio Trujillo Rivera, George Washington University, Children's National Health System; Qing PhD Zeng, George Washington University, Department of Veterans Affairs; James Bost, Children's National Medical Center; Anita MD Patel, Children's National Health System, George Washington University; Hiroki PhD Morizono, Center for Genetic Medicine Research, Children's Research Institute; Dongkyu PhD Kim, Children's Research Institute, Children's National Health System; James MD Chamberlain, Children's National Health System, George Washington University; Murray MBA MD Pollack, Children's National Health System, George Washington University

5:35 p.m. Floor Discussion

79 CC-West 119

Statistical Analysis for Networks—Contributed

Section on Statistical Learning and Data Science, SSC

Chair(s): Cheolwoo Park, University of Georgia

4:05 p.m. Estimating Heterogeneous Biomarker Networks and Their Effects on Disease Outcome—✦Shanghong Xie, Columbia University; Xiang Li, Statistics and Decision Sciences, Janssen Research & Development, LLC; Donglin Zeng, UNC Chapel Hill; Yuanjia Wang, Columbia University

4:20 p.m. Edge Sampling Using Network Local Information—✦Can Le, University of California Davis

4:35 p.m. A Continuous-Time Multicast Network Model—✦Bomin Kim, Pennsylvania State University

4:50 p.m. New Methods for Incorporating Network Cyclic Structures to Improve Community Detection—✦Behnaz Moradijamei, Kansas State University; Michael Higgins, KANSAS STATE UNIVERSITY; Heman Shakeri, Kansas State University

5:05 p.m. High-Dimensional Gaussian Graphical Model on Network-Linked Data—✦Tianxi Li, University of Michigan; Cheng Qian, University of Michigan; Elizaveta Levina, University of Michigan; Ji Zhu, University of Michigan

5:20 p.m. Joint Estimation and Inference for Data Integration Problems Based on Multiple Multi-Layered Gaussian Graphical Models—✦Subho Majumdar, University of Florida; George Michailidis, University of Florida

5:35 p.m. Extendability for Exchangeable Network Models—✦Jiaqi Yin, University of Washington; Thomas Richardson, University of Washington

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

80 CC-West 204

Advancement in Spatial and Spatiotemporal Point Process—Contributed

Section on Statistics and the Environment

Chair(s): James Faulkner, University of Washington

4:05 p.m. A Computationally Tractable Estimation Procedure for Self-Exciting Spatio-Temporal Point Process Models—✦James Molyneux, UCLA Statistics; Frederic Paik Schoenberg, UCLA

4:20 p.m. Velocities for Point Patterns—✦Erin Schliep, University of Missouri; Alan E Gelfand, Duke University

4:35 p.m. Inferring Spatial Point Intensity of Geomagnetic Anomalies from Transect Sampling—✦Kenneth Flagg, Montana State University; Andrew Hoegh, Montana State University; Megan Higgs, Montana State University; John Borkowski, Montana State University

4:50 p.m. Extensions on Non-Parametric Hawkes Models for Applications in Crime and Disease Spread—✦Junhyung Park, UCLA; Frederic Paik Schoenberg, UCLA

5:05 p.m. Assessing Current Temporal and Space-Time Anomalies of Disease Incidence—✦Chih-Chieh Wu, National Cheng Kung University; Chien-Hsiun Chen, Academia Sinica; Sanjay Shete, The University of Texas MD Anderson Cancer Center

5:20 p.m. Combining Disease Surveillance and Animal Movement Data to Predict Infectious Disease Spread—✦Sahar Zarmehri, The Pennsylvania State University; Ephraim Hanks, The Pennsylvania State University; Lin Lin, The Pennsylvania State University

5:35 p.m. Exploring the Dynamics of Interprovincial Mobility in China, Evidence from Panel Data—✦Xin Shi, Manchester Metropolitan University; James Cheng, Manchester Metropolitan University

81 CC-West 217

New Development in Epigenome-Wide Association Studies—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Abhijoy Saha, The Ohio State University

4:05 p.m. Data Adaptive Evaluation of Preprocessing Methods Using Ensemble Machine Learning—✦Rachael Phillips, Biostatistics, UC Berkeley

4:20 p.m. De Novo Detection and Accurate Inference of Differentially Methylated Regions—✦Keegan Korthauer, Dana-Farber Cancer Institute; Sutirtha Chakraborty, Novartis; Yuval Benjamini, Hebrew University of Jerusalem; Rafael Irizarry, Harvard University

4:35 p.m. A Bayesian Hierarchical Model for Analyzing Methylated RNA Immunoprecipitation Sequencing Data—✦Minzhe Zhang, University of Texas Southwestern Medical Center; Qiwei Li, University of Texas Southwestern Medical Center; Yang Xie, University of Texas Southwestern Medical Center

4:50 p.m. Detection of Cell-Type-Specific Risk-CpG Sites in Epigenome-Wide Association Studies—Xiangyu Luo, The Chinese University of Hong Kong; Can Yang, The Hong Kong University of Science and Technology; ✦Yingying Wei, The Chinese University of Hong Kong

5:05 p.m. Integrative Analysis of DNA Methylation Data in Genetic Association Studies—✦Zuoheng Wang, Yale School of Public Health

5:20 p.m. A Feature Selection Method for Vertical Integrative Analysis of Multi-Assay Genomic Data—✦Dror Berel, Fred Hutch; Raphael Gottardo, Fred Hutchinson Cancer Research Center

5:35 p.m. Floor Discussion

82 CC-West 209

Computer Experiments, Statistical Engineering, and Applications in Physical Sciences—Contributed

Section on Physical and Engineering Sciences, Quality and Productivity Section

Chair(s): Ming Li, Amazon

4:05 p.m. Within Laboratory Variance Outlier Detection: An Alternative to Cochran's Test—✦Michael Morton, Altria Client Services

4:20 p.m. Modeling of Sediment Mixing Using Dirichlet Process Mixtures—✦John Tipton, University Of Arkansas; Glenn Sharman, University Of Arkansas; Sam Johnstone, United States Geological Survey

4:35 p.m. Variance Components Estimators OPE, NOPE and AOPE in Linear Mixed Effects Models—✦Subir Ghosh, Univ. of California, Riverside

4:50 p.m. A Group Based Factor Model with Applications to Electricity Load Forecasting—✦Jin Tao, University of Florida; George Michailidis, University of Florida

5:05 p.m. Detection and Isolation of Change in Multichannel Sequential System—✦Sourabh Banerjee, University of Illinois-Urbana; Georgios Fellouris, University of Illinois at Urbana-Champaign

5:20 p.m. Statistical Applications of CLT for Dependent Data—✦Martial Longla, ; Isidore Seraphin Ngongo, Université de Paris 1 Panthéon Sorbonne

5:35 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Contributed Poster Presentations 4:00 p.m.—4:45 p.m.

83 CC- West Hall B

SPEED: Survival Analysis—Contributed

Biometrics Section, Section on Statistics in Epidemiology, Section on Risk Analysis

Chair(s): Paul McNicholas, McMaster University

Biometrics Section

1 **Regression Calibration to Address Error Prone Time-To-Event Outcomes**—✦Eric Oh, University of Pennsylvania; Pamela A Shaw, University of Pennsylvania

2 **A Gaussian Copula Approach for Dynamic Prediction of Survival with a Longitudinally Measured Marker**—✦Krithika Suresh, University of Michigan; Jeremy M.G. Taylor, University of Michigan; Alexander Tsodikov, University of Michigan

3 **Adjusting for Covariate Measurement Error in Failure Time Analysis Under Competing Risks**—✦Carrie Caswell, University of Pennsylvania; Sharon X Xie, University of Pennsylvania

4 **Imputation of Missing EHR Data for Modeling Correlated Survival Outcomes**—✦Jasmin Divers, Wake Forest School of Medicine; W Mark Brown, Wake Forest School of Medicine; Lijun Ma, Wake Forest School of Medicine; Barry I Freedman, Wake Forest School of Medicine

5 **Dependence Modeling for Recurrent Event Times Subject to Right-Censoring with D-Vine Copulas**—✦Nicole Barthel, Technical University Munich; Candida Geerdens, Hasselt University; Claudia Czado, Technical University Munich; Paul Janssen, Hasselt University

6 **Flexible and Interpretable Models for Survival Data**—✦Jiacheng Wu, Univesity of Washington; Daniela Witten, University of Washington

7 **Estimation in the Nested Case-Control Design Under Model Misspecification**—✦Michelle Nuno, ; Daniel L. Gillen, University of California, Irvine

8 **Cox Regression with Non-Ignorable Survival Dependent Missing Covariate Values**—✦Yanyao Yi, UNIVERSITY OF WISCONSIN-MADISON; TING YE, UNIVERSITY OF WISCONSIN-MADISON; MENGGANG YU, UNIVERSITY OF WISCONSIN-MADISON; Jun Shao, UNIVERSITY OF WISCONSIN-MADISON

9 **Temporally Dependent Accelerated Failure Time Model for Capturing the Impact of Events That Alter Survival in Disease Mapping**—✦Rachel Carroll, National Institute of Environmental Health Sciences; Andrew B Lawson, Medical University of South Carolina ; Shanshan Zhao, National Institute of Environmental Health Sciences

Section on Statistics in Epidemiology

10 **An Innovative Approach to Identify Biomarker Signatures for Cancer Genetic Data with Survival Endpoints**—✦Ming Wang, Pennsylvania State University; Zheng Li, Penn State University

Biometrics Section

11 **Survival Analysis Methods for Characterizing B-Cell Mutation Processes**—✦David A. Shaw, Fred Hutchinson Cancer Research Center; Jean Feng, University of Washington; Vladimir N. Minin, University of California, Irvine; Noah Simon, University of Washington; Erick A. Matsen, Fred Hutchinson Cancer Research Center

12 **Competing Risks Matter in the Analysis of Public Health Data: When and How?**—✦Dahhay Lee, National Cancer Center; Hyunsoon Cho, National Cancer Center

Section on Statistics in Epidemiology

13 **Multivariate Spatial Modeling of Interval-Censored Time-To-Event Data and Clinic Visit Counts**—✦Martiniano Flores, University of California, Los Angeles; Robert Weiss, UCLA; Matthew Beymer, Los Angeles LGBT Center

14 **Inference for Fine-Gray Competing Risks Model with High-Dimensional Covariates**—✦Jue Hou, UCSD Biostatistics; Jelena Bradic, UC San Diego; Ronghui Xu, UC San Diego

Biometrics Section

15 **Semiparametric Regression Analysis of Length-Biased Interval-Censored Data**—✦Fei Gao, University of Washington; Kwun Chuen Gary Chan, University of Washington

16 **Sample Size Calculations for Non-Inferiority Trials Using the Concept of Proportional Time**—✦Milind A Phadnis, University of Kansas Medical Center

Section on Risk Analysis

17 **On the Effect of Underlying Dependence Mechanism Over Time-Varying Models for Recurrent Time-To-Event Data**—✦Leila D. Amorim, Universidade Federal da Bahia (UFBA); Marcelo M. Taddeo, Universidade Federal da Bahia (UFBA)

Biometrics Section

18 **Regression Analysis of Recurrent Event Data with Measurement Error**—✦Yixin Ren, University of Maryland, College Park; Xin He, University of Maryland, College Park

19 **Monitoring Rare Events During an Ongoing Clinical Trial**—✦Haley Hedlin, Stanford University; Victoria Ding, Quantitative Sciences Unit, Stanford School of Medicine

Section on Statistics in Epidemiology

20 **Matching Methods for Evaluating the Effect of a Time-Dependent Treatment on the Survival Function**—✦Danting Zhu, University of Michigan; Douglas E. Schaubel, University of Michigan, Ann Arbor

84 CC- West Hall B

SPEED: a Mixture of Topics in Health, Computing, and Imaging—Contributed

Mental Health Statistics Section, Section on Statistical Computing, Section on Statistics in Imaging, Section on Statistical Learning and

Data Science, SSC, Section on Physical and Engineering Sciences,

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Section for Statistical Programmers and Analysts

Chair(s): Paul McNicholas, McMaster University

Section on Statistics in Imaging

21 **Remote Perconditioning Enhances Neuro Protection and Collateral Blood Flow During Ischemia in Distal Cerebral Ischemic Rat Model (MCAo) Through AMPK-ENOS Pathways**—✦Abdul Salam, Hamad Medical Corporation; Aijaz Parray, Hamad Medical Corporation; yonglie Ma, University of Alberta ; Naveed Akhter, Hamamd Medical Corporation; Sajitha VP, Hamad Medical Corporation; Ruth Priyanka, Hamamd Medical Corporation; Ian Winship, University of Alberta; Nosheen Shahid, Hamamd Medical Corporation; Ashfaq Shuaib, University of Alberta

Section on Statistical Computing

22 **Polynomial Based Approximate Probability Distributions**—✦Chris Elrod, Baylor University; James Stamey, Baylor University

Mental Health Statistics Section

23 **Measurement Reliability in Mental Health Research: Critical Implications for Research Design and Analysis**—✦Alessandro De Nadai, Texas State University; Marieke Visser, Texas State University

Section on Statistical Computing

24 **Latent Class Model with Mixed-Mode Data**—✦Yawei Liang, University of South Carolina; David Hitchcock, University of South Carolina

Mental Health Statistics Section

25 **Multivariate Change Point Detection in Non-Asymptotic Settings**—✦Ian Barnett, University of Pennsylvania

Section on Statistical Learning and Data Science

26 **Robust Covariance Estimation and Beyond**—✦Yuan Ke, Penn State University; Wenxin Zhou, University of California, San Diego; Qiang Sun, University of Toronto

Mental Health Statistics Section

27 **Common Reducing Subspace Model and Network Alternation Studies**—✦Wenjing Wang, Florida State University; Xin Zhang, Florida State University; Lexin Li, University of California at Berkeley

Section on Statistical Learning and Data Science

28 **Tailoring PCA for Detecting Sparse Changes in Multi-Stream Data**—✦Martin Tveten, University of Oslo; Ingrid Kristine Glad, University of Oslo

29 **Ranked Sparsity Methods for Transparent Model Selection**—✦Ryan Andrew Peterson, University of Iowa; Joseph Cavanaugh, University of Iowa

Section on Statistics in Imaging

30 **Image-On-Image Regression: a Spatial Bayesian Latent Factor Model for Predicting Task-Evoked Brain Activity Using Task-Free MRI**—✦Cui Guo, University of Michigan

31 **Fusion of the Semiparametric Models and Network Measures in the Study of Brain Dynamic Functional Connectivity**—✦Maria Kudela, Takeda Pharmaceuticals; Jaroslaw Harezlak, Indiana University Bloomington; Mario Dzemidzic, Indiana University School of Medicine; Brandon Oberlin, Indiana University School of Medicine; David A Kareken, Indiana University School of Medicine; Joaquin Goni, Purdue University

Section on Statistical Computing

32 **Fast Generalised Linear Models in a Database**—✦Thomas Lumley, University of Auckland

Section on Statistics in Imaging

33 **A Deep Learning Approach to the Estimation of Bias and Variance in HARDI**—✦Allison Hainline, Vanderbilt University; Hakmook Kang, Vanderbilt University Medical Center; Bennett Landman, Vanderbilt University

Section for Statistical Programmers and Analysts

34 **Creating Counting Process Intervals with Ease**—✦Cynthia Crowson, Mayo Clinic; Terry M Therneau, Mayo Clinic; Elizabeth J Atkinson, Mayo Clinic

Section on Statistical Computing

35 **Multi-Scale Vecchia Approximation of Gaussian Processes**—✦Jingjie Zhang, Texas A&M University; Matthias Katzfuss, Texas A&M University

SUNDAY

Contributed Poster Presentations 5:05 p.m.—5:50 p.m.

85 CC- West Hall B

SPEED: An Ensemble of Advances in Genomics and Genetics—Contributed

Section on Statistics in Genomics and Genetics, ENAR, SSC, Section on Risk Analysis, Section on Statistical Computing, Biometrics Section

Chair(s): Paul McNicholas, McMaster University

Section on Statistics in Genomics and Genetics

1 **Discrete Principal Component Analysis for Population Stratification**—✦Nedret Billor, Auburn University; Yuan Yuan, Auburn University; Asuman Seda Turkmen, The Ohio State University

SSC

2 **On Using Gene Genealogies to Find Trait-Influencing Variants**—✦Payman Nickchi, Simon Fraser University; Jinko Graham, Simon Fraser University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Section on Statistics in Genomics and Genetics

3 **A Tight Spectral Clustering Algorithm for Bipartite Networks with Node Covariates**—✦Yidan Sun,

4 **A Hierarchical Bayesian Deconvolution Model for Inferring Immune Cell Components in Tumor**—✦An-Shun Tai, National Tsing Hua University

Section on Statistical Computing

5 **A Hybrid Method of the Sequential Monte Carlo and the Edgeworth Expansion for Computation of Very Small P-Values in Permutation Tests**—✦James Jian Yang, University of Michigan; Anne YuhPey Buu, University of Michigan

Section on Statistics in Genomics and Genetics

6 **A Novel Framework for Differential Gene Expression Analysis Using Robust Profile Likelihood Ratios**—✦Lehang Zhong, Division of Biostatistics, Dalla Lana School of Public Health, University of Toronto; Lisa Joanna Strug, Genetics and Genome Biology, The Hospital for Sick Children

7 **Empirical Bayes Analysis of Overdispersed High-Dimensional Protein Interaction Data**—✦Anna Reisetter

8 **An Efficient Resampling Method for Order-Restricted Gene-Trait Association Analysis**—✦Yeonil Kim, University of Florida; Yueh-Yun Chi, University of Florida; Fei Zou, University of North Carolina at Chapel Hill

9 **MHi-C: Robust Leveraging of Multi-Mapping Reads in Hi-C Analysis**—✦Ye Zheng, University of Wisconsin Madison; Ferhat Ay, La Jolla Institute for Allergy and Immunology; Sunduz Keles, University of Wisconsin, Madison

10 **A Method for Estimating SNP Heritability with Consideration of Variant Correlation and Non-Parametric Relationship**—✦Hsiao-Chi Liao, National Taiwan University; Chuhsing Kate Hsiao, National Taiwan University Institute of Epidemiology and Preventive Medicine

11 **A Nearly Optimal Sequential Testing Approach to Permutation-Based Association Testing**—✦Julian Hecker, Harvard T.H. Chan School of Public Health; Ingo Ruczinski, Bloomberg School of Public Health; Brent A. Coull, Harvard TH Chan School of Public Health; Christoph Lange, Harvard T.H. Chan School of Public Health

Section on Risk Analysis

12 **P-Value Estimation for the Risk Score of a Prediction Model**—✦Heidi Chen, Vanderbilt University Medical Center; Ming Li, Case Western Reserve University; Huiyun Wu, St. Jude Children's Research Hospital; Yu Shyr, Vanderbilt University Medical Center

Section on Statistics in Genomics and Genetics

13 **Novel Methods for Gene Set Enrichment Analysis with Empirical Memberships for Overlapping Genes**—✦Yun Zhang, University of Rochester; Xing Qiu, University of Rochester

Biometrics Section

14 **Statistical Learning on Next-Generation Sequencing of T Cell Repertoire Data**—✦Li Zhang, UCSF School of Medicine, UCSF; Tao He, San Francisco State University; Alan Paciorek, University of California, San Franciscornia ; Jason Cham, University of California, San Francisco; David Oh, University of California, San Francisco; Lawrence Fong, University of California, San Francisco

Section on Statistics in Genomics and Genetics

15 **An Integrative Bayesian Approach to Dissect Complex Trait Etiology**—✦Corbin Quick, University of Michigan

16 **Zero Inflated Poisson Factorization for Single Cell RNA-Sequencing Data Imputation**—✦Mark Anthony Carty, Princeton University; Barbara Engelhardt, Princeton University

17 **Optimal Covariate Weighting Increases Discoveries in High-Throughput Biology**—✦Paul Schliekelman, University of Georgia; Mohamad Hasan, University of Georgia

18 **Statistical Approach for Investigating Change in Mutational Processes During Cancer Growth and Development**—✦Zhi Yang, University of Southern California; Priyatama Pandey, University of Southern California; Darryl Shibata, University of Southern California; Paul Southern Marjoram, University of Southern California; Kimberly Siegmund, University of Southern California

19 **Gene Expression-Based Classification of Cancer Tumours via Penalized Probabilistic Principal Components Analysis**—✦Wei Deng, University of Toronto; Radu V Craiu, University of Toronto

20 **Benford's Law Based Outliers Detection for Population Stratification in Genotype Data**—✦Yuan Yuan, Auburn University; Nedret Billor, Auburn University; Asuman Seda Turkmen, The Ohio State University

86 CC- West Hall B

SPEED:Statistics and Econometrics—Contributed

Business and Economic Statistics Section, Quality and Productivity Section, Section on Statistical Graphics, Transportation Statistics Interest Group, Section on Statistics in Marketing, Business Analytics/ Statistics Education Interest Group

Chair(s): Paul McNicholas, McMaster University

Business and Economic Statistics Section

21 **Advantageous Statistical Tools for Stock Market Investing**—✦Kenneth Davis,

22 **Multivariate Testing for Fractional Integration**—✦Paulo Rodrigues, Banco de Portugal; Robert Taylor, University of Essex; Antonio Rubia, University of Alicante; Marina Balboa, University of Alicante

23 **Mixed-Typed of Data Distance Metric of Real Estate Properties with Missing Data**—✦Keying Ye, University of Texas at San Antonio

24 **Benchmarking Monthly Seasonally Adjusted Series to Quarterly Adjustments**—✦Brian Monsell, U.S. Census Bureau; Tucker S McElroy, U.S. Census Bureau

Quality and Productivity Section

25 **Sample Size Requirements for Estimating L-Moments**—✦Timothy Anderson, Air Force Institute of Technology; Christine M Schubert, Air Force Institute of Technology; Fairul Mohd-Zaid, Air Force Research Lab

Business and Economic Statistics Section

26 **THE INEQUALITY PROCESS' (IP's) FOOTPRINT in STOCK MARKET "STYLIZED FACTS"**—✦John Angle, The Inequality Process Institute LLC

Quality and Productivity Section

27 **Repeated-Measures ANCOVA for an Antibiotic-Free Experiment in Swine**—✦Danielle Wilson-Wells, DNA Genetics; Tom A. Rathje, DNA Genetics; Caitlyn E Bruns, DNA Genetics

Business and Economic Statistics Section

28 **Understanding Reshoring Through Data Visualization**—✦Megan Eileen Moore, North Carolina State University; Lori Rothenberg, NC State University

29 **Factor GARCH-Ito Models for High-Frequency Data with Application to Large Volatility Matrix Prediction**—✦Donggyu Kim, KAIST; Jianqing Fan, Princeton University

Transportation Statistics Interest Group

30 **Is Faster Always Better? Results from Joint Time-Use-Expenditure and Mode Choice Model**—✦Simona Jokubauskaite, Institute of Applied Statistics and Computing, BOKU Vienna; Reinhard Hoessinger, Institute for Transport Studies, BOKU Vienna; Florian Aschauer, Institute for Transport Studies, BOKU Vienna; Regine Gerike, Institute of Transport Planning and Road Traffic, TU Dresden; Sergio Jara-Diaz, University of Chile; Stefanie Peer, Institute for Multi-Level Governance and Development, WU Vienna; Basil Schmid, Institute for Transport Planning and Systems, ETH Zurich; Kay W. Axhausen, Institute for Transport Planning and Systems, ETH Zurich; Friedrich Leisch, Institute of Applied Statistics and Computing, BOKU Vienna

Business and Economic Statistics Section

31 **Monte Carlo Tree Search and AlphaZero: Past, Present, and Future**—✦Michael Fu, Smith School of Business

32 **Bootstrap and Asymptotic Inference with Multiway Clustering**—✦Matthew Webb, Carleton University; James Gordon MacKinnon, Queen's University; Morten ÿ Nielsen, Queen's University and CREATES

33 **Cash Versus Card: Payment Discontinuities and the Burden of Holding Coins**—✦Huynh Kim, Bank of Canada; Heng Chen, Bank of Canada; Oz Shy, Unaffiliated

Section on Statistical Graphics

34 Enhancing Communication in Data Visualization—✦Mojca Bavdaz, University of Ljubljana; Irena Bolko, University of Ljubljana, Social Science Data Archives

Quality and Productivity Section

35 **The Analysis of Means in the Presence of Covariate (ANOMC)**—✦Tahir Mahmood, City University of Hong Kong; Min Xie, City University of Hong Kong; Muhammad Riaz, King Fahd University of Petroleum and Minerals

Business and Economic Statistics Section

36 **Model Averaging in a Multiplicative Heteroscedastic Model**—✦Alan Wan, City Univ of Hong Kong; Xinyu Zhang, Chinese Academy of Sciences; Yanyuan Ma, Penn State University

Section on Statistics in Marketing

37 **The Art of Ensemble** Modeling with SPSS Modeler—✦Zhen Zhang, C Spire; Lei Zhang, Mississippi State Dept. of Health; James Veillette, C Spire; Timothy Tate, C Spire

Business and Economic Statistics Section

38 **Two-Sample Test for Covariance Operators with Incompletely Observed Functional Data**—✦Lihan Yan, FDA; Tao Zhang, Guangxi University of Science and Technology; Zhaohai Li, George Washington University

Section on Statistical Education

39 **Perspectives, Performance Measurement, and Multivariate Analysis of Grades in Teaching Statistics**—✦William Seaver, Univ. of Tennessee at Knoxville; Missy Morris, Univ. of Tennessee at Knoxville; Thomas Edmiston, Univ. of Tennessee at Knoxville

Quality and Productivity Section

40 **Applications of Non-Standard Disclosure-Avoidance Methods in Clinical Trials Data**—✦Barbara Do, RTI International; Pooja Iyer, RTI International

Invited Poster Presentations 8:30 p.m.—10:30 p.m.

87 **CC- West Hall B**

Invited ePoster Session: a Statistical Smörgåsbord—Invited

SSC, Section on Bayesian Statistical Science, Section on Statistics in Epidemiology, Section on Statistical Learning and Data Science, Section on Nonparametric Statistics, Biometrics Section, Section on Statistics and the Environment, Section for Statistical Programmers and Analysts, Section on Statistics in Imaging, WNAR, Social Statistics Section, Astrostatistics Special Interest Group, Biopharmaceutical Section, ENAR, Section on Risk Analysis, Section on Statistical Consulting

Chair(s): Paul McNicholas, McMaster University

Section on Statistical Consulting

1 **The LISA 2020 Program to Build Statistics Capacity in Developing Countries**—✦Eric Vance, LISA-University of Colorado Boulder

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Section on Statistics in Epidemiology

2 **Conditions for the Uniqueness, Finiteness and Possible Location of the Maximum Likelihood Estimate with a Log Binomial Model**—✦Gurbakhshash Singh, University of Calgary; Gordon Hilton Fick, University of Calgary

Section on Risk Analysis

3 **Two Mixture-Based Clustering Approaches: Modeling an Automobile Insurance Portfolio**—✦Tatjana Miljkovic, Miami University; Daniel Fernandez, Victoria University of Wellington

Section on Bayesian Statistical Science

4 **An Expectation Conditional Maximization Approach for Gaussian Graphical Models**—✦Zehang Li, University of Washington; Tyler McCormick, University of Washington

5 **A Bayesian Model for Multivariate Micro-Level Insurance Claims**—✦Marie-Pier CÙté, Universite Laval; Christian Genest, McGill University; David A Stephens, McGill University

Section on Statistics in Epidemiology

6 **Deep Learning for Statistical Inference in Infectious Disease Systems**—✦Rob Deardon, University of Calgary; Carolyn Augusta, University of Guelph; Graham Taylor, University of Guelph

SSC

7 **Flexible Accelerated Failure Time Model in Survival Analysis**—✦Menglan Pang, McGill University; Michal Abrahamowicz, McGill University; Robert W Platt, McGill University

Section on Statistical Learning and Data Science

8 **Spatio-Temporal Analysis of Children and Adolescents' Emergency Department Use for Mental Health Reasons in Alberta, Canada.**—✦Michelle Thiessen, Simon Fraser University; Joan Hu, Simon Fraser University; Rhonda J. Rosychuk, University of Alberta

Section on Bayesian Statistical Science

9 **Approximate Bayesian Computation with Complex High-Dimensional Data and Limited Simulations**—✦Taylor Gene Pospisil, Carnegie Mellon University

Biopharmaceutical Section

10 **Zero Counts in Single Cell RNA-Seq Data**—Hao Wu, Emory University; ✦Zhijin Wu, Brown University

Section on Statistical Learning and Data Science

11 Quasi-Oracle Estimation of Heterogeneous Treatment Effects—✦Xinkun Nie, Stanford University; Stefan Wager, Stanford University

SSC

12 **Estimation of Fire Duration Distribution with Missing Start Time**—✦Yi Xiong, Simon Fraser University; John Braun, University of British Columbia ; Joan Hu, Simon Fraser University

Section on Bayesian Statistical Science

13 **Bayesian Non-Parametric Hierarchical Models for Lightcurve Classification and Observation Decisions**—✦David Edward Jones, Duke University and SAMSI; Sujit Ghosh, North Carolina State Univ.; Ana-Maria Staicu, NC State University; Ashish Mahabal, Caltech

14 **Approximate Bayesian Computation for the Stellar Initial Mass Function**—✦Jessi Cisewski-Kehe, Yale University; Chad Schafer, Carnegie Mellon University; Grant Weller, Savvysherpa; David Hogg, New York University

15 **A Novel Bayesian Framework to Probe Closed Box Nature of Galaxy Clusters**—✦Arya Farahi, University of Michigan - Ann Arbor

ENAR

16 **Statistical Approaches to Decreasing the Discrepancy of Non-Detects in QPCR Data**—Valeriia Sherina, University of Rochester Medical Center; ✦Love Tanzy, University of Rochester Medical Center; Matthew N. McCall, University of Rochester Medical Center

Section on Bayesian Statistical Science

17 **Generalized Statistical Inference for Astrophysical Discoveries**—✦Sara Algeri, Imperial College London; David A van Dyk, Imperial College London; Jan Conrad, Oskar Klein Centre for Cosmoparticle Physics

Biometrics Section

18 **Nonparametric Causal Effects Based on Incremental Propensity Score Interventions**—✦Edward Kennedy, Carnegie Mellon University

Section on Statistical Learning and Data Science

19 **Addressing Overfitting in Mixtures of Factor Analyzers**—✦Jeffrey L Andrews, University of British Columbia Okanagan

Section on Statistics and the Environment

20 **Spatiotemporal Analysis of Environmental Health Risk**—✦Renjun Ma, University of New Brunswick; Edward Hughes, Edward Hughes Consulting

Biometrics Section

21 **Probabilistic Partial Least Squares Regression Applied to Longitudinal and Cross-Sectional Compositional Data**—✦Peter A Tait, McMaster University; Paul McNicholas, McMaster University

SSC

22 **Detection of Trend Onset in Environmental Time Series**—✦Ying Zhang, Acadia University

Section on Bayesian Statistical Science

23 **The Analysis of Face Perception MEG and EEG Data Using a Potts-Mixture Spatiotemporal Joint Model**—✦Yin Song, University of Victoria; Farouk Nathoo, ; Arif Babul, University of Victoria

SSC

24 **Infere**—✦Steven Cumming, Université Laval

Section on Nonparametric Statistics

25 **Functional Partial Linear Quantile Regression Based on Reproducing Kernel Hilbert Space**—✦Peng Liu, University of Alberta; Linglong KONG, University of Alberta; Bei JIANG, University of Alberta; Nan Zhang, Fudan University; Jianhua Z. Huang, Texas A&M University

Section for Statistical Programmers and Analysts

26 **Gaussian Process Regression with Large Data Sets: Has the Problem Been Solved?**—✦Sonja Surjanovic, University of British Columbia; William Welch, University of British Columbia

SSC

27 **Sparse Estimation for Functional Semiparametric Additive Model**—✦Peijun Sang, Simon Fraser University; Richard Lockhart, Simon Fraser University; Jiguo Cao, Simon Fraser University

28 **Analysis of Paired Binary Data Subject to Misclassification Using a Random Effect Model**—✦Hua Shen, University of Calgary ; Richard John Cook, University of Waterloo

Section on Statistics in Epidemiology

29 **A Grouped Weighted Quantile Regression Approach to Modeling Environmental Chemical Mixtures and Childhood Leukemia Risk**—✦David C. Wheeler, Virginia Commonwealth University

Section on Statistics in Imaging

30 **Efficient Robust Doubly Adaptive Regularized Regression with Application to fMRI Data**—✦Wei Tu, University of Alberta

WNAR

31 **A Model-Based Clustering to Identify Disease-Associated SNPs**—✦Li Xing, University of Victoria; Xuekui Zhang, University of Victoria; Yan Xu, University of Victoria; Weiliang Qiu, Brigham and Women's Hosptial/Harvard Medical School

Social Statistics Section

32 **The Consequences of Requiring "greater Statistical Stringency" for Scientific Publication**—✦Harlan Campbell, University of British Columbia; Paul Gustafson, University of British Columbia

Section on Statistical Learning and Data Science

33 **Mixtures of Contaminated Shifted Asymmetric Laplace** Factor Analyzers—✦Brian C Franczak, MacEwan University

Astrostatistics Special Interest Group

34 **Uncertainty Quantification of Stochastic Computer Model for Binary Black Hole Formation**—✦Luyao Lin, Simon Fraser University; Jim Barrett, University of Birmingham; Derek Bingham, Simon Fraser University; Ilya Mandel, University of Birmingham

Section on Statistics in Epidemiology

35 **Network Meta-Analysis of Disconnected Networks: How Dangerous Are Random Baseline Treatment Effects?**—✦Audrey Béliveau, University of Waterloo; Sarah Goring, SMG Outcomes Research; Robert W Platt, McGill University; Paul Gustafson, University of British Columbia

SSC

36 **Nonparametric Measures of Local Causality and Tests of Local Non-Causality in Time Series**—✦Felix Camirand Lemyre, School of mathematics and statistics, University of Melbourne; Taoufik Bouezmarni, Université de Sherbrooke; Jean-FranÁois Quessy, Université du Québec ‡ Trois-RiviËres

Section on Nonparametric Statistics

37 **Sparse Functional Principal Component Analysis in a New Regression Framework**—✦YUNLONG NIE, Simon Fraser University; Jiguo Cao, Simon Fraser University

Biometrics Section

38 **Inference of Introgressive Hybridization**—✦Jingxue(Grace) Feng, Simon Fraser University; Liangliang Wang, Simon Fraser University; Cedric Chauve, Simon Fraser University

Section on Statistics in Epidemiology

39 **Statistical Methods for Addressing Missing Data in HIV/AIDS Surveillance Systems**—✦Sahar Zangeneh, Fred Hutchinson Cancer Research Center; Ying Qing Chen, Fred Hutchinson Cancer Research Center; Deborah Donnell, Fred Hutch

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

MONDAY JULY 30

Special Presentation 8:30 a.m.—10:20 a.m.

95 CC-West Ballroom A

Introductory Overview Lecture: Leading Data Science: Talent, Strategy, and Impact—Invited

JSM Partner Societies, Caucus for Women in Statistics

Organizer(s): Ming Li, Amazon

Chair(s): Martha Gardner, GE

8:35 a.m.	No Country for (Unadventurous) Statisticians - Building High-Impact Data Science Teams—✦George Roumeliotis, Airbnb
9:05 a.m.	End-To-End Data Science Project Cycle, Pitfalls and Soft Skill Gaps - an Essential Overview for Statistician—✦Ming Li, Amazon
9:35 a.m.	What Hard Skills and Computational Tools Are Needed? - Growing and Learning as a Data Scientist—✦Dennis Sun, Google
10:05 a.m.	Floor Discussion

Invited Sessions 8:30 a.m.—10:20 a.m.

96 CC-East 10

■ ● **Statistics at NCAR and the Emergence of the Atmospheric Science Statistics Community—Invited**

Section on Statistics and the Environment

Organizer(s): Dan Cooley, Colorado State University

Chair(s): Dan Cooley, Colorado State University

8:35 a.m.	Battle Royale: Machine Learning vs. Mechanistically Motivated Spatio-Temporal Models for Atmospheric and Oceanic Processes—✦Christopher K. Wikle, University of Missouri
9:00 a.m.	Detection of Local Discrepancies Between Two Spatio-Temporal Random Fields—✦Bo Li, University of Illinois at Urbana-Champaign; Xianyang Zhang, Texas A&M University; Sooin Yun, University of Illinois at Urbana-Champaign
9:25 a.m.	Was It Raining the Day You Were Born?—✦William Kleiber, University of Colorado; Gregory Benton, University of Colorado
9:50 a.m.	Disc: Douglas William Nychka, NCAR
10:00 a.m.	Disc: Dorit Hammerling, National Center for Atmospheric Research
10:10 a.m.	Floor Discussion

97 CC-West 306

■ ● **Ethical Implication of the Failure of Anonymization—Invited**

Committee on Professional Ethics, Committee on Privacy and Confidentiality, Survey Research Methods Section, Government Statistics Section

Organizer(s): Howard Hogan, U. S. Census Bureau

Chair(s): Rochelle Tractenberg, Georgetown University

8:35 a.m.	Staring Down the Database Reconstruction Theorem—✦John M Abowd, U.S. Census Bureau
9:00 a.m.	Statistical De-Identification: An Industry View—✦Theodore Lystig, Medtronic
9:25 a.m.	The Risk of Re-Identification: An Official Statistics Perspective—✦Stephen John Penneck, International Statistical Institute
9:50 a.m.	Disc: Marcia Levenstein, Pfizer (ret)
10:15 a.m.	Floor Discussion

98 CC-West 224

■ **New Developments in Bayesian Additive Regression Trees—Invited**

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), National Institute of Statistical Sciences

Organizer(s): Rodney Sparapani, Medical College of Wisconsin

Chair(s): Robert McCulloch, Arizona State University

8:35 a.m.	Individualized Treatment for Time-To-Event Outcomes with BART—✦Brent Logan, Medical College of Wisconsin
9:00 a.m.	Nonparametric Regression Models of Multilevel, Heterogeneous Treatment Effects: The National Study of Learning Mindsets—✦Carlos Carvalho, University of Texas; Jared S Murray, University of Texas at Austin; Paul Richard Hahn, Arizona State University ; David Yeager, The University of Texas at Austin; Elizabeth Tipton, Columbia University
9:25 a.m.	Bayesian Regression Tree Ensembles That Adapt to Smoothness and Sparsity—✦Antonio Ricardo Linero, Florida State University; Yun Yang, Florida State University
9:50 a.m.	Disc: Prakash Laud, Medical College of Wisconsin
10:15 a.m.	Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

99 CC-West 211

■ ● Single Cell Sequencing and Cancer Genomics—Invited

Biometrics Section, Section on Statistics in Genomics and Genetics, ENAR, SSC

Organizer(s): Wei Sun, Fred Hutchinson Cancer Research Center

Chair(s): Wei Sun, Fred Hutchinson Cancer Research Center

8:35 a.m. 3?-UTR Shortening Represses Tumor Suppressor Genes in Trans by Disrupting CeRNA Crosstalk—✦Wei Li, Baylor College of Medicine

9:00 a.m. Pathway and Network-Based Integrative Bayesian Modeling of Multiplatform Genomics Data—✦Veera Baladandayuthapani, UT MD Anderson Cancer Center; Jeffrey S Morris, The University of Texas M.D. Anderson Cancer Center; Elizabeth McGuffey, United States Naval Academy; Raymond J. Carroll, Texas A & M University; Min Jin Ha, UT MD Anderson Cancer Center

9:25 a.m. Changing Mixtures Does Not Always Change Margins: An Application to Single-Cell RNA-Seq—✦Michael Newton, University of Wisconsin at Madison; Xluyu Ma, University of Wisconsin at Madison; Christina Kendziorski, University of Wisconsin - Madison

9:50 a.m. Hierarchical Clustering of Single Cells and Detection of Marker Genes—✦Yu Zhang, Pennsylvania State University

10:15 a.m. Floor Discussion

100 CC-West 217

■ ● Optimizing Medical Decision Making with Real World Evidence—Invited

ENAR, Biometrics Section

Organizer(s): Yuanjia Wang, Columbia University

Chair(s): Donglin Zeng, UNC Chapel Hill

8:35 a.m. Shared-Parameter G-Estimation of an Optimal Adaptive Treatment Strategy for Rheumatoid Arthritis—Erica E.M. Moodie, McGill University; ✦Michael Wallace, University of Waterloo

9:00 a.m. Learning Individualized Treatment Rules from Electronic Health Records Data—✦Yuanjia Wang, Columbia University

9:25 a.m. Conquering Massive Clinical Models with GPU Parallelized Logistic Regression—✦Yuxi Tian, UCLA; Trevor Shaddox, UCLA; Marc Suchard, UCLA

9:50 a.m. Comparison of Adaptive Randomized Trial Designs for Time-To-Event Outcomes That Expand Versus Restrict Enrollment Criteria—✦Michael Rosenblum, Johns Hopkins Bloomberg School of Public Health

10:15 a.m. Floor Discussion

101 CC-West 121

■ ● Network Analytics in the Era of Big Data—Invited

Section on Statistics in Marketing, Society for Clinical Trials, Business Analytics/Statistics Education Interest Group

Organizer(s): Yichen Qin, University of Cincinnati

Chair(s): Yang Li, Renmin University of China

8:35 a.m. Estimation of Change Point in Temporally Evolving Networks—✦Moulinath Banerjee, University of Michigan; George Michailidis, University of Florida; Monika Bhatacharjee, University of Florida

9:00 a.m. Randomization for Networked Experiments Using Random Dot Product Graphs—✦Yichen Qin, University of Cincinnati; Carey E Priebe, Johns Hopkins University

9:25 a.m. Decision-Theoretic Aspects of Causal Inference Under Network Interference—✦Daniel L Sussman, Boston University

9:50 a.m. Community Detection in Multilayer Networks with Heterogeneous Community Structure—✦James D. Wilson, University of San Francisco

10:15 a.m. Floor Discussion

102 CC-West 203

■ ● SAMSI-ASTRO: New Innovations and Challenges in Astrostatistics—Invited

Statistical and Applied Mathematical Sciences Institute, Astrostatistics Special Interest Group, International Society for Bayesian Analysis (ISBA)

Organizer(s): Sujit Ghosh, North Carolina State Univ.

Chair(s): Richard Smith, Statistical Applied Mathematical Sciences Institute

8:35 a.m. Detecting Planets: Jointly Modeling Radial Velocity and Stellar Activity Time Series—✦David Edward Jones, Duke University and SAMSI; David Stenning, Imperial College London; Eric Ford, Penn State University; Robert Wolpert, Duke University; Thomas Loredo, Cornell University; Xavier Dumusque, Observatoire Astronomique de l'Universite de Geneve

8:55 a.m. Robust Pulsar Timing Inference with Non-Gaussian Distributions—✦Hyungsuk Tak, SAMSI; Justin A. Ellis, West Virginia University; Sujit Ghosh, North Carolina State Univ.

9:15 a.m. Investigating the Cosmic Web with Topological Data Analysis—✦Jessi Cisewski-Kehe, Yale University

9:35 a.m. Computer Model Calibration to Enable Disaggregation of Chemical Spectra—✦David Stenning, Imperial College London

9:55 a.m. Disc: G. Jogesh Babu, Penn State University

10:15 a.m. Floor Discussion

MONDAY

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

103 CC-East 19

■ ● Educational Tools for Causal Inference in the Health Sciences—Invited

Section on Teaching of Statistics in the Health Sciences, Statistics and Public Policy, Association of Health Services Research

Organizer(s): Douglas Landsittel, University of Pittsburgh

Chair(s): Sally C. Morton, Virginia Tech

8:35 a.m. Causal Inference Guidelines for Pragmatic Trials—✦Miguel Hernan, Harvard School of Public Health

8:55 a.m. A Decision Tool for Causal Inference and Observational Data Analysis Methods in Comparative Effectiveness Research (DECODE CER)—✦Douglas Landsittel, University of Pittsburgh; (Joyce) Chung-Chou H. Chang, University of Pittsburgh; Sally C. Morton, Virginia Tech

9:15 a.m. CERBOT, a Web-Based Support Tool for the Emulation of a Target Trial Using Observational Data—✦Yi Zhang, Medical Technology and Practice Patterns Institute; Mae Thamer, Medical Technology and Practice Patterns Institute; Miguel Hernan, Harvard School of Public Health

9:35 a.m. The Development of an Online Teaching Curriculum for PCORI's Methodology Standards—✦Elizabeth A Stuart, Johns Hopkins Bloomberg School of Public Health

9:55 a.m. Disc: Emily Evans, Patient-Centered Outcomes Research Institute (PCORI)

10:15 a.m. Floor Discussion

104 CC-West 110

● Visualization and Reproducibility - Challenges and Best Practices—Invited

Section on Statistical Graphics, Section for Statistical Programmers and Analysts, Section on Statistical Learning and Data Science, Section on Statistical Computing, SSC

Organizer(s): Wendy L Martinez, Bureau of Labor Statistics

Chair(s): John L. Eltinge, United States Census Bureau

8:35 a.m. EDA: A Historical Perspective and a Path Forward—✦Dianne Cook, Monash University

9:05 a.m. The Extended Reproducibility Phenotype - Interactive Graphics Edition—✦Gabriel Becker, Genentech Research; Vivek Ramaswamy, Genentech Research; Nolan Nichols, Genentech Research; Altaf Kassam, Genentech Research; Dinakar Kulkarni, Genentech Research

9:35 a.m. A Unified Approach to Exploration, Authoring, and Communication with Reproducible Visualizations—✦Nils Gehlenborg, Harvard Medical School

10:05 a.m. Floor Discussion

105 CC-West 206/207

■ ● Novel Development of Matching Designs for Complex Observational Studies—Invited

Section on Statistics in Epidemiology, Health Policy Statistics Section, Mental Health Statistics Section, Survey Research Methods Section

Organizer(s): Bo Lu, The Ohio State University

Chair(s): Dylan Small, University of Pennsylvania

8:35 a.m. Building Representative Matched Samples in Large-Scale Observational Studies with Multivalued Treatments—✦Jose Zubizarreta, Harvard University

9:00 a.m. Optimal Tradeoffs Between Generalized Design Goals in Multivariate Matching—✦Samuel David Pimentel, University of California, Berkeley; Rachel R. Kelz, University of Pennsylvania

9:25 a.m. Poly-Matching for Observational Studies: A Comparative Trauma Care Study—✦Bo Lu, The Ohio State University

9:50 a.m. Disc: Paul Rosenbaum, University of Pennsylvania

10:15 a.m. Floor Discussion

106 CC-West 222

Recent Trends in Inference from Dynamical Systems—Invited

IMS, SSC

Organizer(s): Kevin McGoff, UNC Charlotte

Chair(s): Kevin McGoff, UNC Charlotte

8:35 a.m. Variational Analysis of Empirical Risk Minimization—✦Andrew B Nobel, University of North Carolina at Chapel Hill; Kevin McGoff, UNC Charlotte

9:05 a.m. Learning from Dynamical Systems—✦Ingo Steinwart, University of Stuttgart

9:35 a.m. Multilevel Monte Carlo for Inference—✦Kody Law, Oak Ridge National Laboratory

10:05 a.m. Floor Discussion

107 CC-West 301

JASA, Theory and Methods—Invited

JASA, Theory and Methods, SSC

Organizer(s): Regina Liu, Rutgers University; Hongyu Zhao, Yale

Chair(s): Hongyu Zhao, Yale

8:35 a.m. From Fixed-X to Random-X Regression: Bias-Variance Decompositions, Covariance Penalties, and Prediction Error Estimation—✦Saharon Rosset, Tel Aviv University; Ryan Tibshirani, Carnegie Mellon University

9:15 a.m. Disc: Stefan Wager, Stanford University

9:30 a.m. Disc: Larry Wasserman, Carnegie Mellon University

9:45 a.m. Disc: Xiaotong Shen, University of Minnesota

10:15 a.m. Floor Discussion

Topic Contributed Sessions 8:30 a.m.—10:20 a.m.

108 CC-West 214

■ ● **New Era for Safety Evaluation—Topic Contributed**

Biopharmaceutical Section, Biometrics Section, American Public Health Association

Organizer(s): Freda Cooner, Sanofi

Chair(s): Freda Cooner, Sanofi

8:35 a.m. The Role of Real World Evidence in a Regulatory Environment: Focus on Safety—✦Estelle Russek-Cohen, US FDA CDER

8:55 a.m. Sources of Safety Data and Statistical Strategies for Design and Analysis: Real World Insights—✦Olga Marchenko, Bayer

9:15 a.m. Propensity-Score-Based Controls: Its Use in Establishing Benefit/Risk of Medicines for Unmet Medical Need—✦Junjing Lin, AbbVie; Margaret Gamalo-Siebers, Eli Lilly & Co; Ram Tiwari, Center for Devices and Radiologica Health, FDA

9:35 a.m. Visual Analytics in the Real World Evidence Data Realm—✦Melvin Munsaka, AbbVie, Inc.; Kefei Zhou, Theravance Biopharma; Krishan P. Singh, GlaxoSmithKline

9:55 a.m. Disc: Judy Li, Regeneron Pharmaceuticals Inc.

10:15 a.m. Floor Discussion

109 CC-West 304/305

■ **Time Series and Forecasting—Topic Contributed**

Business and Economic Statistics Section, International Statistical Institute

Organizer(s): Sumanta Basu, Cornell University

Chair(s): David Matteson, Cornell University

8:35 a.m. Goodness of Fit Statistics Based on Quantile Periodogram for Time Series with Nonlinear Dynamic Volatility—✦Ta-Hsin Li, IBM T. J. Watson Research Center

8:55 a.m. Monotonic Effects of Characteristics on Returns—✦Jared Fisher, University of Texas McCombs School of Business; Carlos Carvalho, University of Texas

9:15 a.m. New Methods for Threshold Variable Identification and Estimation in Threshold Dynamic Factor Models—✦Xialu Liu, San Diego State University; Rong Chen, Rutgers University

9:35 a.m. New Approach to Dimention Reduction for Volatility of Stationary Multivariate Time Series"—✦Chung Eun Lee, University of Tennessee, Knoxville; Xiaofeng Shao, University of Illinois at Urbana-Champaign

9:55 a.m. Regularized Estimation of High-Dimensional Spectral Density—✦Sumanta Basu, Cornell University

10:15 a.m. Floor Discussion

110 CC-West 215/216

■ ● **Assessing Treatment Effects for Life History Processes—Topic Contributed**

Biopharmaceutical Section, Mental Health Statistics Section, ENAR

Organizer(s): Mouna Akacha , Novartis Pharma AG

Chair(s): Mouna Akacha , Novartis Pharma AG

8:35 a.m. Symptom Trials Vs Morbidity/Mortality Trials: Are Different Estimands Required?—✦Steven Snapinn, Amgen, Inc.

8:55 a.m. Recurrent Event Estimands: With or Without Competing Terminal Event—✦Jiawei Wei, Novartis

9:15 a.m. Assessment of a Treatment Effect for Recurrent Event Data in the Presence of a Terminal Event—✦Philip Hougaard, Lundbeck

9:35 a.m. Comparison of Event Rates Between On- and Off-Drug Treatment Periods for a Recurrent Adverse Event—✦Brenda Crowe, Eli Lilly & Co.; Haoda Fu, Eli Lilly and Company; Yebin Tao, Eli Lilly and Company

9:55 a.m. Disc: Hsien-Ming James Hung, PhD, Food and Drug Administration

10:15 a.m. Floor Discussion

111 CC-East 16

■ ● **Issues and Advances in Power Calculations for Mental Health Studies—Topic Contributed**

Mental Health Statistics Section, National Institute on Drug Abuse-NIH

Organizer(s): Wesley Kurt Thompson, University of California, San Diego

Chair(s): Hongyuan Cao, University of Missouri-Columbia

8:35 a.m. Guidance on NIMH Grant Application Power Calculations—✦Wesley Kurt Thompson, University of California, San Diego

8:55 a.m. Statistical Methods and Tools in Mental Health Studies: a Review of Scientific Rigor, Power Analyzes and Reproducibility—✦Abera Wouhib, National Institutes of Health

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

9:15 a.m. Improving the Design of Pragmatic Clinical Trials Using Data Collected from Electronic Medical Records—✦Susan Shortreed, Kaiser Permanente Washington Health Research Institute; Carlyn M Rutter, RAND Corporation; Andrea J. Cook, Kaiser Permanente Washington Health Research Institute; Greg Simon, Kaiser Permenete Washington Health Research Insitute

9:35 a.m. Sample Size Considerations for Comparing Dynamic Treatment Regimens in a Sequential Multiple-Assignment Randomized Trial with a Continuous Longitudinal Outcome—✦Nicholas J Seewald, University of Michigan; Kelley M Kidwell, University of Michigan; James R McKay, University of Pennsylvania; Inbal Nahum-Shani, University of Michigan; Daniel Almirall, University of Michigan

9:55 a.m. Statistical Methodology for Modern Mental Health Research—✦Eva Petkova, NYU School of Medicine; Thaddeus Tarpey, Wright State University; Robert Todd Ogden, Columbia University; Andrea Troxel, New York University School of Medicine

10:15 a.m. Floor Discussion

MONDAY

112 CC-West 122

■ Smoothing for Spatially and Temporally Indexed Data—Topic Contributed

Royal Statistical Society, Section on Nonparametric Statistics, ENAR, Section on Statistical Learning and Data Science

Organizer(s): Philip Reiss, University of Haifa

Chair(s): Michael Lavine, University of Massachusetts, Amherst

8:35 a.m. Some Model-Building Tools for Gaussian Processes, Using an Approximate Form of the Restricted Likelihood—Maitreyee Bose, University of Washington; ✦James S. Hodges, University of Minnesota; Sudipto Banerjee, UCLA School of Public Health

8:55 a.m. Flexible Group Difference Tests for Age-Varying Distributions—✦Philip Reiss, University of Haifa

9:15 a.m. Is Everything a (Fancy) GLM? Links Between Point Processes and Generalized Additive Models—✦David Miller, University of St Andrews

9:35 a.m. Lagged Hierarchical Semiparametric Models for Task-Based Dynamic Functional Connectivity (DFC)—✦Jaroslaw Harezlak, Indiana University Bloomington; Zikai Lin, Indiana University; Maria Kudela, Takeda Pharmaceuticals; Brandon Oberlin, Indiana University School of Medicine; Joaquin Goni, Purdue University; David A Kareken, Indiana University School of Medicine; Mario Dzemidzic, Indiana University School of Medicine

9:55 a.m. Methods for Large Scale Smooth Space Time Modeling—✦Simon Wood,

10:15 a.m. Floor Discussion

113 CC-West 202

■ ● Recent Advances in Design and Analysis of Two-Phase Studies—Topic Contributed

Lifetime Data Analysis Interest Group

Organizer(s): Qingning Zhou, University of North Carolina at Charlotte

Chair(s): Yinghao Pan, Fred Hutchinson Cancer Research Center

8:35 a.m. A Revisit to Weighted Methods for Two-Phase Studies—✦Ying Yan, Sun Yat-sen U

8:55 a.m. On Optimal Two-Phase Designs—✦Ran Tao, Vanderbilt University Medical Center

9:15 a.m. A Hybrid Method for the Stratified Mark-Specific Proportional Hazards Models with Missing Data, with Applications to Dengue Vaccine Efficacy Trials—✦Yanqing Sun, University of North Carolina At Charlotte; Li Qi, Biostatistics and Programming, Sanofi; Peter Gilbert, Fred Hutchinson Cancer Research Center; Fei Heng, University of North Carolina at Charlotte

9:35 a.m. Tracing Studies in Cohorts with Attrition: Selection Models for Efficient Sampling—✦Leilei Zeng, University of Waterloo; Nathalie Moon , University of Waterloo; Richard John Cook, University of Waterloo

9:55 a.m. Two-Phase Outcome-Dependent Sampling Design with Interval-Censored Failure Time Data—✦Qingning Zhou, University of North Carolina at Charlotte; Jianwen Cai, University of North Carolina; Haibo Zhou, University of North Carolina

10:15 a.m. Floor Discussion

114 CC-West 109

■ Survey Design and Data Adjustment Decisions in Mixed-Mode Surveys—Topic Contributed

Survey Research Methods Section

Organizer(s): Zeynep Tuba Suzer -Gurtekin, ISR, University of Michigan

Chair(s): David Biagas, National Agricultural Statistics Service

8:35 a.m. Evaluating Data Quality in a Randomized Sequential Mixed-Mode Survey Experiment—✦Joseph Sakshaug, German Institute for Employment Research; Alexandru Cernat, University of Manchester

8:55 a.m. The Challenge of Creating Web-Push Surveys of the General Public;—✦Don Dillman, Washington State University

9:15 a.m. Adjustment Methods Between Web-Mail and Telephone Data Collections in the Surveys of Consumers—✦Paul Schulz, ISR, University of Michigan; Zeynep Tuba Suzer -Gurtekin, ISR, University of Michigan; Caitlin Beach, University of Michigan; Yingjia Fu, University of Michigan; Edward Ellcey, University of Michigan; Richard Curtin, University of Michigan

9:35 a.m. Mode-Based Measurement Differences in Attitudes Measures Within the Surveys of Consumers—✦Zeynep Suzer-Gurtekin, ; Paul Schulz, ISR, University of Michigan; Caitlin Beach, University of Michigan; Yingjia Fu, University of Michigan; Edward Ellcey, University of Michigan; Richard Curtin, University of Michigan

9:55 a.m. Disc: Jim Lepkowski, Institute of Social Research, University of Michigan

10:15 a.m. Floor Discussion

115 CC-West 221

■ ● Papers in Honor of Professor James R Thompson (1938-2017)—Topic Contributed

Section on Nonparametric Statistics

Organizer(s): David W Scott, Rice University

Chair(s): David W Scott, Rice University

8:35 a.m. Remembering J. R. Thompson, a Civic Scientist—✦Katherine Ensor, Rice University

8:55 a.m. Some Comments on James R. Thompson's Work in Mathematical Biology—✦Marek Kimmel, Rice University

9:15 a.m. Risk Factors for Criminal Behavior and Activity—✦Rudy Guerra, Rice University; Pablo Ormachea, Center for Science and Law

9:35 a.m. Some Inspired Non-Parametric Portfolio Approaches of James R. Thompson—✦John Dobelman, Rice University

9:55 a.m. The Roots of James Thompson: Life as a Graduate Student at Princeton—✦Karen Kafadar, University of Virginia

10:15 a.m. Floor Discussion

116 CC-West 120

■ Modern Advances in Record Linkage Using Statistical Learning Methods—Topic Contributed

Section on Statistical Learning and Data Science, Survey Research Methods Section

Organizer(s): Andee Kaplan, Duke University

Chair(s): Ben Sherwood, University of Kansas

8:35 a.m. Counting Casualties in the Syrian Civil War with Bayesian Record Linkage—✦Andrea Kaplan, Duke University; Rebecca C. Steorts, Duke University

8:55 a.m. Breaking Computational Chicken-And-Egg Loop in Adaptive Sampling and Estimations Using Locality Sensitive Sampling (LSS)—✦Anshumali Shrivastava, Rice University

9:15 a.m. UNIQUE ENTITY ESTIMATION with APPLICATION to the SYRIAN CONFLICT—✦Beidi Chen, Rice University

9:35 a.m. Disc: Patrick Ball, Human Rights Data Analysis Group

9:55 a.m. Disc: Michele Peruzzi

10:15 a.m. Floor Discussion

Topic Contributed Panels 8:30 a.m.—10:20 a.m.

117 CC-West 118

■ ● Four Decades of Statistical Consulting—Topic Contributed

Section for Statistical Programmers and Analysts, Biopharmaceutical Section, Section on Statistical Consulting, Section on Teaching of Statistics in the Health Sciences

Organizer(s): Kent Koprowicz, Axio Research LLC

Chair(s): Vipin Arora, Eli Lilly and Company

Panelists: ✦Kent Koprowicz, Axio Research LLC

✦Steve Kirby, Covance Inc.

✦Natasa Rajicic, Cytel Inc.

✦Lisa Weissfeld, Statistics Collaborative

10:10 a.m. Floor Discussion

Contributed Sessions 8:30 a.m.—10:20 a.m.

118 CC-West 209

SPEED: Teaching Statistics: Strategies and Applications—Contributed

Section on Statistical Education

Chair(s): Brenna Curley, Moravian College

8:35 a.m. Introducing R to Non-STEM Undergraduates in a Second Semester Statistics Course—✦Darlene Olsen, Norwich University

8:40 a.m. If an Algorithm Is Published in a Journal and No One Understands it, Was it Really Published at All?—✦Nick Thieme, University of California-Hastings; Joyce Cahoon, North Carolina State University; Daniel Ahmed Alhassan, Missouri University of Science and Technology

8:45 a.m. The Statistics Workshop: Cultivating Diversity in Statistics—✦Gretchen Martinet, University of Virginia; Jeffrey J. Holt, University of Virginia

8:50 a.m. Statistical Programming to Principles of Data Science: Rethinking the Traditional Statistical Programming Curricula—✦Andrew Hoegh, Montana State University

8:55 a.m. Shiny Dashboards to Help Students Improve Performance—✦Robert Carver, Brandeis International Business School

9:00 a.m. Experiments in Statistics: Do Students Perceive Value?—✦Sudipta Roy, University of St. Francis; Richard Kloser, University of St. Francis

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

9:05 a.m. How Students Make Sense of Data on an E-Learning Platform—✦Philipp Burckhardt, Carnegie Mellon University; Christopher Genovese, Carnegie Mellon University; Rebecca Nugent, Carnegie Mellon University

9:10 a.m. Efficacy of 'the Islands'-Based Projects Compared to Student-Collected Data Projects in Introductory Statistics Courses—✦Ryne VanKrevelen, Elon University; Kirsten Doehler, Elon University; Andrea Metts, Elon University; Lisa Rosenberg, Elon University; Laura Taylor, Elon University

9:15 a.m. The Impact of Academically Homogeneous Classrooms in Undergraduate Statistics Education—✦James Pleuss, United States Military Academy

9:20 a.m. A Didactic Game to Understand Multicollinearity and Its Consequences in a Linear Regression Model—✦Luis Quiros Gomez, School of Statistics, University of Costa Rica; Marìa José Solìs QuirÛs, School of Statistics, University of Costa Rica; Noelia Rojas Ramìrez, School of Statistics, University of Costa Rica

9:30 a.m. The Novel Communication Tool: Mathematics Classroom Collaborator (MC2)—✦Sohee Kang, University of Toronto Scarborough; Marco Pollanen, Trent University; Sotirios Damouras , University of Toronto Scarborough

9:35 a.m. Predicting Student Performance in Undergraduate Introductory Statistics Courses—✦Dusty Turner, USMA

9:40 a.m. Survey of Prediction Methods to Assess Student Performance—Joyce Cahoon, North Carolina State University; ✦Daniel Stanhope, Learn Platform

9:45 a.m. Type S Error Control in Hypothesis Testing—✦Andrew Neath, SIU Edwardsville

9:50 a.m. Affordable and Open Educational Resources (OER) in Statistical Education—✦Suhwon Lee, Univ of Missouri

9:55 a.m. Introducing Forecast Intervals with a Confidence Game—✦Robin Lock, St. Lawrence University

10:00 a.m. Teaching Statistical Consulting at Primarily Undergraduate Institutions—✦Tracy Morris, University of Central Oklahoma; Cynthia Murray, University of Central Oklahoma ; Tyler Cook, University of Central Oklahoma

10:05 a.m. Helping All Students Properly Design and Analyze Experiments—✦Jennifer Broatch, Arizona State University

10:10 a.m. Recreational Statistics at the Junior High/High School Level—✦Joy Yang, MIT

10:15 a.m. Providing Introductory Students a Big Data Experience—✦Paul Stephenson, Grand Valley State University; Patricia Stephenson, Grand Valley State University; Lori Hahn, Grand Valley State University

119 CC-West 213

SPEED: Government and Health Policy—Contributed

Health Policy Statistics Section, Government Statistics Section, Section on Statistical Learning and Data Science, Section on Teaching of Statistics in the Health Sciences, Section for Statistical Programmers and Analysts

Chair(s): Mojca Bavdaz, University of Ljubljana

8:35 a.m. DataSifter: Statistical Obfuscation of Electronic Health Record and Other Sensitive Data Sets—✦Nina Zhou, University of Michigan; Simeone Marino, Statistics Online Computational Resource, University of Michigan; Lu Wang, University of Michigan; Yiwang Zhou, University of Michigan; Ivo Dinov, Statistics Online Computational Resource, University of Michigan

8:40 a.m. Deep Learning on Small Data - Experiences in Transfer Learning for Healthcare—✦Dennis Murphree,

8:45 a.m. Doing More with Less - Eliminating the Long Survey Forms from the Occupational Employment Statistics Survey—✦Carrie K. Jones, US Bureau of Labor Statistics

8:50 a.m. Functional Principal Component Analysis for GFR Curves After Kidney Transplant—✦Jianghu Dong, ; Liangliang Wang, Simon Fraser University; Jagbir Gill, University of BC; Jiguo Cao, Simon Fraser University

8:55 a.m. Nonparametric Machine Learning with Variable Selection for Synthetic Controls—✦Christoph Kurz, Helmholtz Zentrum Muenchen; Laura Hatfield, Harvard Medical School; Sherri Rose, Harvard Medical School

9:00 a.m. Statistically Supporting Health Policy Decision-Making—✦Frank Yoon, IBM Watson Health

9:05 a.m. Intravenous Fluid Treatments for Ebola Patients: The Risk and the Reward—✦Derrick Yam, Brown University; Tao Liu, Brown University; Adam Levine, Brown University; Adam Aluisio, Brown University; Shiromi Peters, International Medical Corps; Suzanne Averill, International Medical Corps; Stephen Kennedy, Ministry of Health, Liberia; Fodey Sahr, Sierra Leone Ministry of Defence; Jillian Peters, Brown University; Daniel Cho, Brown University

9:10 a.m. Comparison of Methods for Predicting High-Cost Patients Captured Within the Oncology Care Model (OCM): a Simulation Study—✦Jung-Yi Lin, Icahn School of Medicine at Mount Sinai; Wei Zhang, UALR; Mark Liu, Mount Sinai Health System; Mark Sanderson, Mount Sinai Health System; Luis Isola, Mount Sinai Health System; Madhu Mazumdar, Icahn School of Medicine at Mount Sinai; Liangyuan Hu, Icahn School of Medicine at Mount Sinai

9:15 a.m. Intervening on the Data to Improve the Performance of Health Plan Payment Methods—✦Savannah Bergquist, Harvard University; Tim Layton, Harvard Medical School; Tom McGuire, Harvard Medical School; Sherri Rose, Harvard Medical School

9:20 a.m. Developing and Evaluating Methods for Estimating Race/Ethnicity in an Incomplete Dataset Using Address,

Surname and Family Race—✦Gabriella Christine Silva, Brown University; Roee Gutman, Brown University

9:30 a.m. Can Post-Stratification Weights Eliminate the Need for Additional Weighting Adjustments?—✦Chrishelle Lawrence, U.S. Energy Information Administration

9:35 a.m. Open Data Sharing and Its Statistical Limitations—✦Pooja Iyer, RTI International; Barbara Do, RTI International

9:40 a.m. Predictors of Hospitalization During a Medicare Skilled Nursing Facility Stay—✦Fei Han, The Hilltop Institute; Ian Stockwell, The Hilltop Institute

9:45 a.m. Comparison of Treatment Policies Using Bayesian Nonparametric G-Formula—✦Yizhen Xu, Brown University; Tao Liu, Brown University; Rami Kantor, Brown University; Joseph W Hogan, Brown University School of Public Health

9:50 a.m. Optimal Matching Approaches in Health Policy Evaluations Under Rolling Enrollment—✦Jonathan Gellar, Mathematica Policy Research; Jiaqi Li, Mathematica Policy Research; Lauren Vollmer, Mathematica Policy Research

9:55 a.m. Assessing Health Care Interventions via an Interrupted Time Series Model: Study Power and Design Considerations—✦Maricela Cruz, University of California, Irvine; Miriam Bender, University of California, Irvine; Daniel L. Gillen, University of California, Irvine; Hernando Ombao, King Abdullah University of Science and Technology

10:00 a.m. Absence of Evidence Is Not Evidence of Absence: a Better Parallel Trends Test—✦Alyssa Bilinski, Harvard Graduate School of Arts and Sciences; Laura Hatfield, Harvard Medical School

10:05 a.m. New Applications of Machine Learning to Estimating Large Physician Demand Models—✦Bryan Sayer, Social & Scientific Systems, Inc.; William Encinosa, Agency for Health Care Quality and Research

10:10 a.m. On Utilizing Published Prevalence Estimates to Perform Difference-In-Difference Tests: Testing the Impact of Recreational Marijuana Laws—✦Christine Mauro, Columbia University; Chen Chen, New York State Psychiatric Institute; Silvia Martins, Columbia University; Magda Cerd·, University of California, Davis; Melanie M. Wall, Columbia University

10:15 a.m. Community Detection with Dependent Connectivity—✦Yubai Yuan, University of Illinois at Urbana-Champaign; Annie Qu, University of Illinois at Urbana-Champaign

120 CC-West 208

SPEED: Nonparametric Statistics: Estimation, Testing, and Modeling—Contributed

Section on Nonparametric Statistics

Chair(s): Scott Colwell, University of Guelph

8:35 a.m. Quantile Function Modeling Applied to Time Between Healthcare-Associated Infection Events—✦Jonathan R Edwards, Center for Disease Control & Prevention

8:40 a.m. Model Class Reliance: Variable Importance Measures for Any Machine Learning Model Class, from the—✦Aaron Fisher, Harvard University; Cynthia Rudin, Duke University; Francesca Dominici, Harvard T. H. Chan School of Public Health

8:45 a.m. Random Conditional Histogram Based Density Estimation with Applications in Probabilistic Forecasting—✦Rui Li, North Carolina State University; Howard D Bondell, University of Melbourne; Brian Reich, North Carolina State University

8:50 a.m. Tangent Field and Multi-Fractional Brownian Motion with Applications on Stock Indices—✦Jinqi Shen, University of Michigan; Tailen Hsing, University of Michigan

8:55 a.m. Consistent Goodness-of-Fit Tests for Gamma Distributions Based on Empirical Hankel Transforms—✦Elena Hadjicosta, Penn State University; Donald Richards, Penn State University

9:00 a.m. Convergence Rates of a Partition Based Bayesian Multivariate Density Estimation Method—✦Linxi Liu, Columbia University; Dangna Li, Stanford University; Wing Hung Wong, Stanford University

9:05 a.m. A Bootstrap-Based Test for Distributional Symmetry in SO(3)—✦Ulrike Genschel, Iowa State University; Daniel Nordman, Iowa State University; Stephen Vardeman, Iowa State University; Yalin Rao, Iowa State University

9:10 a.m. Approximate Inference for Large Non-Gaussian Spatial Data—✦Daniel Zilber, Texas A&M University; Matthias Katzfuss, Texas A&M University

9:15 a.m. Quantile-Optimal Treatment Regimes with Censored Data—✦Yu Zhou, University of Minnesota; Lan Wang, University of Minnesota; Rui Song, North Carolina State University

9:20 a.m. Multiple Imputation Using Denoising Autoencoders—✦Lovedeep Gondara,

9:30 a.m. Coverage Probability of Empirical Likelihood for Dependent Data—✦Guangxing Wang, University of California, Davis; Wolfgang Polonik, University of California, Davis

9:35 a.m. Semiparametric Regression for Measurement Error Model with Heteroscedastic Error—✦Mengyan Li, ; Yanyuan Ma, Penn State University; Runze Li, Penn State University

9:40 a.m. Information Theoretic Estimation of Econometric Functions—✦Yi Mao, University of California, Riverside; Aman Ullah, University of California, Riverside

9:45 a.m. Wasserstein Gradients for the Temporal Evolution of Probability Distributions—✦Yaqing Chen, University of California, Davis; Hans Mueller, UC Davis

9:50 a.m. Constrained Bayesian Inference Through Posterior Projections—✦Sayan Patra, Duke University; David B Dunson, Duke University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

9:55 a.m. Nonlinear Dependency and an Application in Brain Functional Connectivity Study—✦Rui Liu, Louisiana Tech University

10:00 a.m. A DCp Criterion for Nonparametric First Derivative Estimation—✦Sisheng Liu, Fred Hutchinson Cancer Research Center; Richard Charnigo, University of Kentucky; Cidambi Srinivasan, University of Kentucky

10:05 a.m. Permutation Tests for Regression Analysis in Respondent-Driven Sampling Data—✦Dongah Kim, University of Massachusetts; Krista J. Gile, University of Massachusetts; Pedro Mateu-Gelabert, National Development and Research Institutes, Inc.; Honoria Guarino, National Development and Research Institutes, Inc.

10:10 a.m. Statistical Methods for the Analysis of Ventilator-Free Days—✦Charity Morgan

121 CC-West 212

SPEED: Data Expo—Contributed

Section on Statistics and the Environment, Section on Statistical Computing, Caucus for Women in Statistics

Chair(s): Wendy L Martinez, Bureau of Labor Statistics

8:35 a.m. Let's Talk About the Weather—✦Jill Lundell, Utah State University; Brennan Bean, Utah State University; Juergen Symanzik, Utah State University

8:40 a.m. Modeling and Mapping Weather Forecast Accuracy—✦Queen Ikhelowa, ; Darren Keeley, CSUEB

8:45 a.m. Exploring Population Health with Fluctuations in Weather—✦Brian Hochrein, IBM Watson Health

8:50 a.m. Assessing Prediction Error in Traditional Weather Forecasts vs. a Data-Centric Approach—✦Robert Garrett, Miami University; Ryan Estep, Miami University; Nichole Rook, Miami University; Benjamin William Schweitzer, Miami University; Thomas Fisher, Miami University

8:55 a.m. Verification, Diagnosis, and Adjustment of Current Temperature Forecasting System in the United States—✦Han-Yueh Lee, National Tsing Hua University; Hsiao-Ting Lin, National Tsing Hua University

9:00 a.m. Spatial Correlation in Weather Forecast Error Metrics—✦Phillip Alexander Jang, Cornell University

9:05 a.m. Should You Pay Attention to Daily Weather Forecast? An Exploration—✦Dooti Roy, Boehringer Ingelheim Pharmaceuticals Inc.; Gregory Vaughan, Bentley University; Jianan Hui, Boehringer Ingelheim Pharmaceuticals Inc.; Junxian Geng, Boehringer Ingelheim Pharmaceuticals Inc.

9:10 a.m. The Impact of Bias and Uncertainty of Weather Forecasts on Storm Events—✦Mary Frances Dorn, Los Alamos National Laboratory; Kimberly Kaufeld, Los Alamos National Laboratory

9:15 a.m. Uncertainty Quantification of Weather Forecasts—✦Yu Wang, University of British Columbia; Gong Zhang, University of British Columbia; Boyi Hu, University of British Columbia; Ho Yin Ho, University of British Columbia

9:20 a.m. Weather Forecasts: How Reliable Are They?—✦Xuemao Zhang, East Stroudsburg University

9:30 a.m. An Analysis on the Accuracy of Weather Forecasts—✦Benjamin William Schweitzer, Miami University; Nichole Rook, Miami University; Ryan Estep, Miami University; Robert Garrett, Miami University; Thomas Fisher, Miami University

9:35 a.m. Do I Really Need a Jacket?—✦Joe Watson, UBC; Qiong Zhang, UBC; Daniel Dinsdale, The University of British Columbia

9:40 a.m. The Myths About Weather Forecasting—Ying (Daisy) Yu, Simon Fraser University; Chuyuan (Cherlane) Lin, Simon Fraser University; ✦Yifan Wu, Simon Fraser University

9:45 a.m. Do I Need to Check the Weather Forecast, or Is Yesterday's Weather a Reasonable Prediction?—✦Rachel Harter, RTI International; Kayla Nowak, RTI International; Nicole Mack, RTI International

9:50 a.m. BENCHMARKING the EFFECTIVENESS of CATEGORICAL RESPONSE VARIABLE MODELS and THEIR VISUALIZATIONS on WEATHER DATA—✦Kristen Bystrom, ; Zhi Yuh Ou Yang, Simon Fraser University; Lei Chen, Simon Fraser University

9:55 a.m. Analysis of Weather Forecasting Data for Data Expo 2018—✦Jordan Rodu, University of Virginia

10:00 a.m. Exploring Spatiotemporal Patterns in Forecast Data—✦Erin Howard, Oregon State University; Matthew Higham,

10:05 a.m. Distribution of Prediction Errors and Reasons Behind the Large Deviations in Weather Forecast—✦Zhiyuan Shu, Lingsong Zhang, Purdue University

Contributed Sessions 8:30 a.m.—10:20 a.m.

122 CC-West 219

Clinical Trial Design and Missing Data—Contributed

Biopharmaceutical Section

Chair(s): Qi Jiang, Amgen

8:35 a.m. Impact on Statistical Power by Different Imputation Methods for Binary Endpoints with Missing Data—✦Xiaomei Liao, AbbVie Inc.; Jun Zhao, AbbVie; Bidan Huang, AbbVie Inc.

8:50 a.m. Missing Data Framework for Estimating Biomarker Clinical Utility Under Incomplete Follow-Up—✦Julie Kobie, Merck Research Laboratories; Lingkang Huang, Merck Research Laboratories; Robin Mogg, Merck

Research Laboratories; Jared Lunceford, Merck Research Laboratories

9:05 a.m. Assessing the Uncertainty Due to Chemicals Below the Detection Limit in Chemical Mixture Estimation—✦Paul Hargarten, VCU; David C. Wheeler, Virginia Commonwealth University

9:20 a.m. Linking Medicare Current Beneficiary Survey (MCBS) to Augment Post-Market Real World Data from Medicare Claims: a Multiple Imputation Approach—✦Yun Lu, FDA; Xiyuan Wu, Acumen LLC; Yoganand Chillarige, Acumen LLC; Michael Wernecke, Acumen LLC; Hector Izurieta, FDA; Jeffrey Kelman, CMS; Richard Forshee , FDA

9:35 a.m. On Imputation Methods for Missing Binary Outcomes in Clinical Trials—✦Ricky Yue, The Medicines Company; Shu Zhang, The Medicines Company

9:50 a.m. Bayesian Nonparametric Analysis of Longitudinal Data with Ordinal Outcomes and Non-Monotone Non-Ignorable Missingness—✦Yu Cao, Virginia Commonwealth University; Nitai Mukhopadhyay, Virginia Commonwealth University

10:05 a.m. Floor Discussion

123 CC-West 218

■ Binary and Ordinal Outcome Regression—Contributed

Biometrics Section

Chair(s): Yanbing Zheng, AbbVie

8:35 a.m. Analysis of Matched Case-Control Study with a Misclassified Exposure—✦Samiran Sinha, Texas A & M University; Christopher Manuel, Texas A&M University; Suojin Wang, Texas A&M University

8:50 a.m. A Bayesian Logistic Model with Covariate to Identify Optimal Dose for Heterogeneous Population in Phase I Oncology Trial—✦Xin Wei, Celgene Corporation; Michael Branson, celgene corporation

9:05 a.m. Comparison of Empirical Size and Power of Goodness-of-Fit Tests for Multiple Logistic Regression Model Under Varied Sample Size Conditions—✦Pengcheng Lu, ; Jonathan D Mahnken, University of Kansas Medical Center

9:20 a.m. Improving the Hosmer-Lemeshow Goodness-of-Fit Test—✦Nikola Surjanovic, ; Thomas Loughin, Simon Fraser University

9:35 a.m. Ordinal Outcomes: Considerations for the Generalized Linear Model with the Log Link—✦Gurbakhshash Singh, University of Calgary; Gordon Hilton Fick, University of Calgary

9:50 a.m. Structural Equation Modeling with Latent Variables for Secondary Phenotypes in Case-Control Association Studies—✦Ting-Huei Chen, Université Laval

10:05 a.m. Methods for Estimating Points Based Risk Score for Binary Clinical Outcome—✦Alok Dwivedi, Texas Tech University Health Sciences Center El Paso; Muditha Perera, Texas Tech University Health Sciences Center El Paso; Durgesh Kumar Dwivedi, University of Texas Southwestern Medical Center; Anit Parihar, King George's Medical University; Sada Nand Dwivedi, All India Institute of Medical Sciences; Rakesh Shukla, University of Cincinnati

124 CC-East 17

Causal Inference and Observational Health Policy Studies—Contributed

Health Policy Statistics Section

Chair(s): Danielle Braun, Harvard T. H. Chan School of Public Health

8:35 a.m. Non-Parametric Bayesian Methods for Causal Inference with Multiple Treatments—✦Michael Lopez , Skidmore College ; Liangyuan Hu, Icahn School of Medicine at Mount Sinai; Chenyang Gu, Harvard Medical School

8:50 a.m. Making Optimal Matching Size-Scalable Using Optimal Calipers—✦Ruoqi Yu, University of Pennsylvania; Paul Rosenbaum, University of Pennsylvania

9:05 a.m. Propensity Score Analysis for Subgroup Effects with Correlated Covariates—✦Shan-Yu Liu, UCSF; Bo Lu, The Ohio State University; Chunyan Liu, CCHMC; Edward Nehus, CCHMC; Maurizio Macaluso, CCHMC; Mi-Ok Kim, University of California San Francisco

9:20 a.m. Variance of Treatment Effect, an Important Yet Difficult Parameter—✦Jonathan Levy,

9:35 a.m. Instrumental Variable Methods for Comparing Cancer Survival Outcomes—✦Fei Wan, University of Arkansas for Medical Sciences; Dylan Small, University of Pennsylvania; Nandita Mitra, University of Pennsylvania

9:50 a.m. Improved Air Quality Saved Lives: a Mediation on Fine Particulate Matters—✦Geoffrey Peterson, U. S. Environmental Protection Agency

10:05 a.m. Floor Discussion

125 CC-West 223

● New Nonparametric Statistical Methods for Multivariate and Clustered Data—Contributed

Section on Nonparametric Statistics

Chair(s): Xuerong Wen, Missouri University of Science and Technology

8:35 a.m. Nonparametric K-Sample Test on Riemannian Manifolds with Application to Analyzing Mitochondrial Shapes—✦Ruiyi Zhang, Florida State University; Todd Ogden, Columbia University; Martin Picard, Columbia University; Anuj Srivastava, Florida State University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

8:50 a.m. Nonparametric Test for Homogeneity of Covariance in Multivariate Regression—✦Yan Xu, University of Kentucky

9:05 a.m. Statistical Inference of Two Classifiers by Partial Area Under the ROC Curve with Empirical Likelihood—✦Xue Ding, University of Kentucky; Mai Zhou, University of Kentucky

9:20 a.m. Rank Score Test for Regional Quantiles Treatment Effect Detection—✦Yuan Sun, University of Michigan; Xuming He, University of Michigan

9:35 a.m. Fully Nonparametric Methods for Partially Complete Clustered Data—✦Yue Cui, Department of Statistics

9:50 a.m. Testing Factor-Covariate Interaction in Rank Repeated-Measures Analysis of Covariance ModelsTesting Factor-Covariate Interaction in Rank Repeated-Measures Analysis of Covariance Mo—✦Donghui Zhang, Sanofi; Chunpeng Fan, Sanofi

10:05 a.m. Floor Discussion

126 CC-East 14

New Development in Reliability Models and Innovative Applications—Contributed

Section on Physical and Engineering Sciences, Quality and Productivity Section

Chair(s): Zhongnan Jin, Virginia Tech

8:35 a.m. Statistical Inference on Remaining Useful Life in a Two-Phase Degradation Model Under Gamma Process—✦Hon Keung Tony Ng, Southern Methodist University; Man Ho Ling, The Education University of Hong Kong; Kwok Leung Tsui, City University of Hong Kong

8:50 a.m. Bayesian Estimation of Analyte Concentrations Using Sensor Responses and Design Optimization of a Sensor System—✦David Han, University of Texas at San Antonio

9:05 a.m. Power Outage Prediction for Adverse Weather Events—✦Seth Guikema, University of Michigan; Steven Quiring, Ohio State University; Ken Buckstaff, First Quartile Consulting; Mike Beck, Beck Consulting; Alan Bowman, Clarkson University; Brent McRoberts, Texas A&M University; Roshanak Nateghi, Purdue University

9:20 a.m. Network Structural Equation Modeling for Photovoltaic Modules Lifetime Performance in Real-World and Accelerated Exposures—✦Wei-Heng Huang, Case Western Reserve University; JiQi Liu, Case Western Reserve University; Alan J. Curran, Case Western Reserve University; Justin S. Fada, Case Western Reserve University; Jennifer L. Braid, Case Western Reserve University; Roger H. French, Case Western Reserve University

9:35 a.m. Exponentiated Weibull-Geometric Regression Model—✦Felix Famoye, Central Michigan University

9:50 a.m. Inference for the Progressively Type-I Censored Step-Stress Accelerated Life Test Under Interval Monitoring—✦Tianyu Bai, ; David Han, University of Texas at San Antonio

10:05 a.m. Correlation Analysis of Interval Data—✦Muzi Zhang, Dennis Lin, Pennsylvania State University

127 CC-East 9

■ Communication and Technical Skills in Statistical Consulting and Collaboration—Contributed

Section on Statistical Consulting

Chair(s): Ismael Flores Cervantes, Westat

8:35 a.m. Preparing Future Leaders: Cultivating Communication with Wikipedia—✦Michelle M Wiest, University of Idaho; Christopher Williams, University of Idaho

8:50 a.m. Effective Collaboration Between Biostatisticians and Clinicians in Estimating the Power and Sample Size—✦Yahya Daoud, Baylor Scott & White Health

9:05 a.m. Transitioning Statistical Consultation Training Away from the Classroom—✦Viviana Rodriguez, Virginia Commonwealth University; Adam Sima, Virginia Commonwealth University; Brian S Di Pace, Virginia Commonwealth University

9:20 a.m. Sensory Attributes That Highly Distinguish Products Do Not Necessarily Drive Consumer Liking of the Said Products—✦Jason Parcon, PepsiCo

9:35 a.m. Adjusted T-Test for Data with a Small Number of Clusters—✦Jia Wang, FDA-CTP; Qian Li, FDA CTP

9:50 a.m. Survival Analysis Applied to Agricultural Sciences—✦Jung Ae Lee, University of Arkansas Agriculture Statistics Laboratory

10:05 a.m. Left-Censored Data: the Orphan Child of Survival Analysis—✦Brenda Gillespie, Univ of Michigan

128 CC-West 115

Curricular Considerations for Statistics and Data Science Education—Contributed

Section on Statistical Education, Business Analytics/Statistics Education Interest Group

Chair(s): Kevin McCarter, Louisiana State University

8:35 a.m. Revisit: a Statistical Teaching Tool in R—Tiffany Eunice Chen, UC Davis; ✦Emily Watkins, UC Davis; Norman Matloff, University of California at Davis

8:50 a.m. Developing an Introductory Data Science Course in a Computer Science Curriculum—✦Dianna Spence, University of North Georgia

9:05 a.m. Teaching Bayesian Statistics in Undergraduate Classes—✦Ananda Jayawardhana, Pittsburg State University

9:20 a.m. Statistics Projects in a PIC-MATH Course—✦Debra Hydorn, University of Mary Washington

9:35 a.m. Statistical Literacy and the Log-Normal Distribution—✦Milo Schield, Augsburg College

9:50 a.m. A Venn-Diagram Analysis of the Role of Statistics in Data Science—✦John McKenzie, Babson College

10:05 a.m. Floor Discussion

129 CC-West 210

● Adaptive Design - 1—Contributed

Biopharmaceutical Section

Chair(s): John Han

8:35 a.m. Basket Trial Design Using Bayesian Model Averaging—✦Matthew Psioda, University of North Carolina; Jiawei Xu, University of North Carolina; Qi Jiang, Amgen; Chunlei Ke, Biogen; Zhao Yang, Amgen Inc; Joseph G Ibrahim, University of North Carolina Chapel Hill

8:50 a.m. Formulation of Data Monitoring Committee Recommendations for Adaptive Design Clinical Trials—✦Navneet Hakhu, Axio Research

9:05 a.m. Efficient Two-Stage Designs and Proper Inference for Animal Studies—✦Chunyan Cai, UT Health Science Center at Houston; Jin Piao, University of Southern California; Jing Ning, The University of Texas M.D. Anderson Cancer Center; Xuelin Huang, University of Texas MD Anderson Cancer Center

9:20 a.m. How to Inform and Revise Dose in Pediatric Program --- Some Statistical and Strategic Thinking—✦Yang Liu, Merck & Co Inc; Anne Chain, Merck; Rebecca Wrishko, Merck; Man (Mandy) Jin, Merck & Co., Inc.; Elizabeth Schaeffer, Merck; Kara Bickham, Merck

9:35 a.m. Specification Setting - an Adaptive Approach—✦Brad Evans, Pfizer, Inc

9:50 a.m. A Novel Framework for Bayesian Response-Adaptive Randomization—✦Jian Zhu, Takeda; Ina Jazic, Harvard University; Yi Liu, Takeda Pharmaceuticals

10:05 a.m. Closed-Form Solutions for Group Sequential Design in Survival Trials with Non-Proportional Hazards—✦Jianliang Zhang, Medimmune, LLC; Eric Pulkstenis, AbbVie

130 CC-West 114

● Time Series Data, Trend Analysis, and Repeated Measures—Contributed

Government Statistics Section

Chair(s): Marilyn Seastrom, US Department of Education

8:35 a.m. Anticipating Brexit Effects; a Multivariate Approach to Detecting Change Points—✦Charlotte Gaughan, Office for National Statistics

8:50 a.m. NCHS Guidelines for Analysis of Trends—✦Xianfen Li, National Center for Health Statistics/CDC; Deborah Ingram, National Center for Health Statistics/CDC

9:05 a.m. Demographic Turning Points for the United States: Population Projections 2020 to 2060—✦Jonathan Vespa, US Census Bureau

9:20 a.m. Repeated Measurement of a Criminal Risk Assessment on Individuals Over Time—✦David Schwager, Multnomah County DCJ

9:35 a.m. Use of National Syndromic Surveillance Data to Monitor Weekly Lyme Disease Activity in Four US Regions—✦Hong Zhou, CDC; Michael Coletta, CDC; Howard Burkom, Johns Hopkins Applied Physics Laboratory; Aaron Kite Powell, CDC; Ruth Jajosky, CDC; Tara Strine, CDC

9:50 a.m. Pseduolikelihood for Clustered Time-To-Event Outcomes from Complex Surveys—✦Jing Wang,

10:05 a.m. Floor Discussion

131 CC-West 117

Simulation and MCMC—Contributed

Section on Statistical Computing

Chair(s): Ruth Hummel, SAS Institute, JMP Division

8:35 a.m. An Exact Local Bouncy Particle Sampler Combined with Hamiltonian Monte Carlo Algorithms for Continuous Time Markov Chains—✦Tingting Zhao, University of British Columbia; Alexandre Bouchard-CÙté, University of British Columbia

8:50 a.m. A Direct Quantile Regression—✦Rachel Morris, Brock University; Mei Ling Huang, Brock University

9:05 a.m. Evaluating Sufficient Bootstrapping for Confidence Interval Estimates: a Simulation Approach—✦Khairul Islam, Eastern Michigan University; Tanweer Shapla, Eastern Michigan University

9:20 a.m. Confidence Intervals for a Two-Parameter Exponential Distribution: One- and Two-Sample Problems—✦Yanping Xia, ; Kalimuthu Krishnamoorthy, University of Louisiana at Lafayette

9:35 a.m. A Resampling Approach to Assessing Solution Quality in Stochastic Optimization—✦Huajie Qian, Columbia University; Henry Lam, Columbia University

9:50 a.m. The CBD-O Model for Modeling Obesity Prevalence—✦Tatjana Miljkovic, Miami University; Seonjin Kim, Miami University

10:05 a.m. Variational Approximation for Importance Sampling—✦Xiao Su, University of Illinois at Urbana Champaign; Yuguo Chen, University of Illinois at Urbana-Champaign

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

132 CC-West 119

Statistical Analysis for Networks—Contributed

Section on Statistical Learning and Data Science

Chair(s): Ray-Bing Chen, National Cheng Kung University, Taiwan

8:35 a.m. Factor Models for High-Dimensional Dynamic Networks: With Application to International Trade Flow Time Series 1981--2015—✦Elynn CHEN, Rutgers University; Rong Chen, Rutgers University

8:50 a.m. Structural Balance in Antagonistic Ties in Village Social Networks—✦Derek Feng, Yale University

9:05 a.m. Segmenting Dynamic Network Data—✦Rex Cheung, San Francisco State University

9:20 a.m. Inferring Low-Rank Population Structure from Multiple Network Samples—✦Keith Levin, University of Michigan; Asad Lodhia, University of Michigan; Elizaveta Levina, University of Michigan

9:35 a.m. Modeling Sporadic Event Dynamics with Markov-Modulated Hawkes Processes—✦Jing Wu, Columbia University; Tian Zheng, Columbia University

9:50 a.m. Fast Scalable Random Graph Change Point Estimation via Random Sampling—✦Mingyuan Gao, University of Florida; Moulinath Banerjee, University of Michigan; George Michailidis, University of Florida

10:05 a.m. Designing A/B Tests in a Collaboration Network—✦Sangho Yoon, Google

133 CC-West 205

Gene-Set Based Analysis in Genomic Studies—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Cristian Oliva, Colorado State University

8:35 a.m. Integration of Multiple 'Omic Data Types for Screening Disease-Related Gene Sets with Applications in Lung Cancer—✦Su Hee Chu, Brigham and Women's Hospital and Harvard Medical School; Yen-Tsung Huang, Academia Sinica

8:50 a.m. Evaluating Statistical Classifiers for Detecting C9orf72 Amyotrophic Lateral Sclerosis Patients Based on Whole Blood RNAseq Data—✦Wenting Wang, Biogen; Guolin Zhao, Biogen; Feng Gao, Biogen; Tzu-Ying Liu, University of Michigan; Ayla Ergun, Biogen; Jessica Hurt, Biogen

9:05 a.m. Building a Genomic Signature via Transfer Learning on Both Labelled and Unlabelled High-Dimensional Data: a Case Study in Predicting Prostate Cancer Metastasis—✦Yang Liu, GenomeDx Biosciences; Hossein Sharifi-Noghabi, Simon Fraser University; Nicholas Erho, GenomeDX Biosciences; Raunak Shrestha, Vancouver Prostate Centre; Mohammed Alshalalfa, GenomeDX Biosciences; Elai Davicioni, GenomeDX Biosciences; Colin Collins, Vancouver Prostate Centre; Martin Ester, Simon Fraser University

9:20 a.m. Biclustering Algorithm for Biomedical Literature Mining Guided by Prior Information—✦Jin Hyun Nam, ; Zhenning Yu, Medical University of South Carolina; Daniel Couch, Medical University of South Carolina; Andrew B Lawson, Medical University of South Carolina ; Dongjun Chung, Medical University of South Carolina

9:35 a.m. Outer Node FDR Control for Gene Ontology and Other Directed Acyclic Graphs—✦Eugene Katsevich, Stanford University; Chiara Sabatti, Stanford University; Marina Bogomolov, Technion

9:50 a.m. Robust Inference Based on Linear Mixed Models with Application to Gene Detections—✦Youngseok Song, Colorado State University; Wen Zhou, Colorado State University; Kim Hoke, Colorado State University; Wenxin Zhou, University of California, San Diego

10:05 a.m. Resampling-Based Control of the False Discovery Rate Incorporating Shrinkage Estimation for the Covariance Matrix—✦Josephine Sarpong Akosa, Oklahoma State University; Melinda McCann, Oklahoma State University

134 CC-West 204

Recent Development in Methods for Statistical Genetics—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Nathan Sandholtz, Simon Fraser University

8:35 a.m. Pleiotropic Effects of Genetic Variants on Aging Traits and Lifespan: Applications of Stochastic Process Models—✦Konstantin Arbeev, Duke University; Olivia Bagley, Duke University; Fang Fang , Duke University; Hongzhe Duan, Duke University; Ilya Zhbannikov, Duke University; Igor Akushevich, Duke University; Alexander Kulminski, Duke University; Svetlana Ukraintseva, Duke University; Anatoliy Yashin, Duke University

8:50 a.m. Sampling Partial Genealogies Using Sequential Importance Sampling—✦Dongmeng Liu, ; Jinko Graham, Simon Fraser University

9:05 a.m. Large Scale Application of Mendelian Randomization for Systematic Causal Inferences Using GWAS Summary Statistics for Drug Discovery and Development—✦Xing Chen, Pfizer Inc WRD

9:20 a.m. Comparison of Hardy-Weinberg Equilibrium Methods for Survey Data—✦John Pleis, National Center for Health Statistics; Donald Malec, National Center for Health Statistics; Rong Wei, National Center for Health Statistics; Vladislav Beresovsky, National Center for Health Statistics; Bill Cai, CDC/NCHS; Te-Ching Chen, CDC/NCHS; Yulei He, CDC/NCHS; Peter Meyer, National Center for Health Statistics; Lyna Schieber, Centers for Disease Control and Prevention; Hee-Choon Shin, CDC/NCHS;

Ajay Yesupriya, State University of New York at Albany; Guangyu Zhang, National Center for Health Statistics

9:35 a.m. A Multi-Dimensional Integrative Scoring Framework for Predicting Functional Regions in the Human Genome—✦Xihao Li, Harvard T.H. Chan School of Public Health; Godwin Yung, Takeda Pharmaceutical; Hufeng Zhou, Harvard T.H. Chan School of Public Health; Iuliana Ionita-Laza, Columbia University; Xihong Lin, Harvard University

9:50 a.m. Two-Way Sparsity for Time-Varying Networks, with Applications in Genomics—✦Thomas Bartlett, University College London; Ricardo Silva, University College London; Ioannis Kosmidis, University of Warwick

10:05 a.m. Empirical Bayes Estimation of Gene Expression Fold Change—✦Abbas Rahal, University of Ottawa; Marta Padila, University of Ottawa; David R. Bickel, University of Ottawa

135 CC-West 111

Nonresponse Adjustment and Weighting—Contributed

Survey Research Methods Section

Chair(s): Dan Liao, RTI International

8:35 a.m. Investigation of Alternative Calibration Estimators in the Presence of Nonresponse—✦Daifeng Han, Westat; Richard Valliant, University of Michigan

8:50 a.m. An Evaluation of Interviewer Observation Accuracy in the Food Acquisition and Purchasing Survey Pilot Study—✦Weijia Ren, Westat; Tom Krenzke, Westat; Brady T. West, University of Michigan

9:05 a.m. Evaluating Nonresponse Weighting Adjustment for the Population-Based HIV Impact Assessments Surveys: On Incorporating Survey Outcomes—✦Tien-Huan Lin, Westat; Ismael Flores Cervantes, Westat; Suzue Saito, ICAP at Columbia University; Rommel Bain, U.S. Centers for Disease Control and Prevention

9:20 a.m. Evaluation of Nonresponse Adjustment Options on the National Health and Nutrition Examination Survey—✦William Cecere, Westat; Minsun Riddles, Westat; Te-Ching Chen, National Center for Health Statistics

9:35 a.m. Empirical Study on the Size of Nonresponse Bias—✦Ann-Marie Flygare, ÷rebro university; Dan Hedlin, Stockholm university

9:50 a.m. Estimating Propensity of Survey Response by Mode Type Using Regression Trees—✦Gavin Corral, USDA NASS; Tyler Wilson, USDA NASS

10:05 a.m. Nonresponse Bias Analysis for National Survey on Drug Use and Health Using Small Area Estimation Methodology—✦Akhil Vaish, RTI International; Matthew Williams, SAMHSA/CBHSQ; Kathy Spagnola, RTI International; Ana Saravia, RTI International; Neeraja Sathe, RTI International

136 CC-West 112

■ Development of Indicators: Prediction vs. Inference—Contributed

Social Statistics Section

Chair(s): Brian Sloboda, University of Phoenix

8:35 a.m. Quantify the Thucydides Trap Risk—✦Charles Tan, Pfizer, Inc.

8:50 a.m. Inferential Analysis of the Supreme Court Citation Network—✦Christian Schmid, The Pennsylvania State University; Bruce Desmarais, The Pennsylvania State University

9:05 a.m. Measurement Variation in Bibliometric Impact Indicators—✦Stephan Stahlschmidt, German Centre for Higher Education Research and Science Studies (DZHW); Marion Schmidt, German Centre for Higher Education Research and Science Studies (DZHW)

9:20 a.m. New Frontiers in Measuring the Wellbeing in the Big Data Era—✦Daniele Toninelli, University of Bergamo; Michela Cameletti, University of Bergamo; Stephan Schlosser, Universit‰t Gˆttingen

9:35 a.m. Development of the Canadian Marginalization Index Using Factor Analysis—✦Camille Charbonneau, Statistics Canada

9:50 a.m. Investigating Gender Differences in Mobility and Activity Space Using Density Ranking—✦Zhihang Dong, University of Washington; Adrian Dobra, University of Washington; Yen-Chi Chen, University of Washington

10:05 a.m. Using Neural Generative Models to Release Synthetic Twitter Corpora with Reduced Stylometric Identifiability of Users—✦Joshua Snoke, ; Alexander Ororbia, Pennsylvania State University; Fridolin Linder, Pennsylvania State University

Special Presentation 10:30 a.m.—12:20 p.m.

137 CC-West Ballroom BC

Introductory Overview Lecture: Multivariate Data Modeling with Copulas—Invited

JSM Partner Societies, Caucus for Women in Statistics

Organizer(s): Christian Léger, Université de Montréal

Chair(s): Bruno Rémillard, HEC Montreal

10:35 a.m. Part 1: a Gentle Introduction to Copula Modeling and Rank-Based Inference—✦Christian Genest, McGill University

11:25 a.m. Part 2: Copula Regression, Hierarchical Structures, and Dimension Reduction Through Clustering—✦Johanna G. Neslehova, McGill University

12:15 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Invited Sessions 10:30 a.m.—12:20 p.m.

138 CC-West 214

■ ● Statistical Methods for Electronic Healthcare Data—Invited

ENAR, Health Policy Statistics Section, Biometrics Section, SSC

Organizer(s): Yingqi Zhao, Fred Hutchinson Cancer Research Center; Eric Laber, North Carlina State University

Chair(s): Eric Laber, North Carlina State University

10:35 a.m. A General, Scalable Framework for Handling Missing Data in EHR-Based Research—✦Sebastien Haneuse, Harvard T.H. Chan School of Public Health; Sarah B Peskoe, Duke University; David Arterburn, Kaiser Permanente Washington Health Research Institute; Michael Daniels, University of Florida

11:00 a.m. Statistical Methods for Handling Missing Data in Distributed Health Data Networks—Yi Deng, Google Inc.; Xiaoqian Jiang, University of California, San Diego; ✦Qi Long, University of Pennsylvania

11:25 a.m. Robust Bayesian Variable Selection for Modeling Mean Medical Costs—✦Lei Liu, Washington University in St Louis; Grace Yoon, Texas A&M University; Wenxin Jiang, Northwestern University; Tina Shih, MD Anderson Cancer Center

11:50 a.m. Floor Discussion

139 CC-West 109

■ ● Competing Effectively: Hosting, Designing, and Participating in Kaggle-Style Competitions—Invited

Section on Statistics in Defense and National Security, Section on Statistical Learning and Data Science, Section on Physical and Engineering Sciences, Quality and Productivity Section

Organizer(s): Kary Myers, Los Alamos National Laboratory

Chair(s): Mike Grosskopf, Simon Fraser University

10:35 a.m. Effective Data Competition Hosting: Strategic Design and Analysis to Maximize Learning—✦Christine M Anderson-Cook, Los Alamos National Laboratory; Kary Myers, Los Alamos National Laboratory

11:05 a.m. Bayesian Design of Experiments with Multiple Priors for Kaggle Competition Design—✦Kevin Randal Quinlan, The Pennsylvania State University; Christine M Anderson-Cook, Los Alamos National Laboratory

11:35 a.m. General Techniques for Successful Data Science Competitions—✦Ian Michael Mouzon, Iowa State University

12:05 p.m. Floor Discussion

140 CC-West 211

■ ● Design and Analysis of Cancer Immunotherapy Trials—Invited

Biopharmaceutical Section, Society for Clinical Trials, Statistics in Biopharmaceutical Research Journal

Organizer(s): Zhenzhen Xu , FDA

Chair(s): Bifeng Ding, AbbVie

10:35 a.m. A Bayesian Phase I/II Trial Design for Immunotherapy—✦Suyu Liu, MD Anderson Cancer Center; Beibei Guo, Louisiana State University; Ying Yuan, University of Texas M.D. Anderson Cancer Center

11:00 a.m. Achieving Optimal Power of Logrank Test with Random Treatment Time-Lag Effect—✦Zhenzhen Xu , FDA; Yongsoek Park, Unversity of Pittsburgh; Boguang Zhen, FDA; Bin Zhu, NIH/NCI

11:25 a.m. Use of Piecewise Weighted Log-Rank Test for Trials with Delayed Treatment Effect—✦Boguang Zhen, FDA; Zhenzhen Xu , FDA; Bin Zhu, NIH/NCI; Yongsoek Park, Unversity of Pittsburgh

11:50 a.m. Practical Considerations on the Challenges to the Design and Analysis of Immuno-Oncology Trials—Yabing Mai, AbbVie, Inc; ✦Yue Shentu, Merck and Co Inc

12:15 p.m. Floor Discussion

141 CC-West 306

■ ● Recent Advances in High-Dimensional Bayesian Model Selection—Invited

International Indian Statistical Association, Section on Bayesian Statistical Science, Section on Statistical Learning and Data Science

Organizer(s): Naveen Naidu Narisetty, University of Illinois at Urbana Champaign

Chair(s): Minsuk Shin, Harvard University

10:35 a.m. Fully Bayesian Spectral Methods for Imaging Data—Brian Reich, North Carolina State University; ✦Joseph Guinness, NC State University; Simon Vandekar, University of Pennsylvania; Russell T Shinohara, University of Pennsylvania; Ana-Maria Staicu, NC State University

11:00 a.m. Sparse Inference with Spike-And-Slab Posterior Distributions—✦Ismael Castillo, Universite Pierre et Marie Curie - Paris 6

11:25 a.m. Statistical Properties of Variational Bayes—✦Anirban Bhattacharya, Texas A&M University; Debdeep Pati, Texas A&M University; Yun Yang, Florida State University

11:50 a.m. Disc: Naveen Naidu Narisetty, University of Illinois at Urbana Champaign

12:15 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

142 CC-West 217

■ ● Metabolomics Data Analytics - the New Frontier in Precision Medicine—Invited

WNAR, Section on Statistics in Genomics and Genetics, ENAR, SSC

Organizer(s): Katerina Kechris, Colorado School of Public Health; Jean Yee Hwa Yang, University of Sydney, Australia

Chair(s): Jean Yee Hwa Yang, University of Sydney, Australia

10:35 a.m.	Hierarchical Processing for LC/MS Metabolomics Data Generated in Multiple Batches—Douglas Walker, Emory University; Karan Uppal, Emory University; Dean Jones, Emory University; ✦Tianwei Yu, Emory University
11:00 a.m.	Normalizing Metabolomics Data—✦Alysha De Livera, The University of Melbourne
11:25 a.m.	Bayesian Network Models for Integrating Genetics and Metabolomics Data—✦Denise Marie Scholtens, Northwestern University; Alan Kuang, Northwestern University
11:50 a.m.	Disc: Susmita Datta, ASA Committee on Women in Statisitcs
12:15 p.m.	Floor Discussion

143 CC-West 206/207

■ ● Some New Perspectives and Developments in Biostatistical Research in the Era of Data Science—Invited

SSC, ENAR, Biometrics Section

Organizer(s): Peisong Han, University of Waterloo

Chair(s): Peisong Han, University of Waterloo

10:35 a.m.	Relevance, Validity, and Bias in the Integration of Health Data—✦Jerald Lawless, University of Waterloo
10:55 a.m.	How Small Data Can Leverage Big Data, and/or Conversely—✦Bhramar Mukherjee, University of Michigan
11:15 a.m.	Modeling for Stem Cell Transplant Data—✦Zhezhen Jin, Columbia University
11:35 a.m.	Using Electronic Health Records Data for Predictive and Causal Inference About the HIV Care Cascade—✦Joseph W Hogan, Brown University School of Public Health
11:55 a.m.	Combining Phenotypes, Genotypes, and Genealogies to Fine-Map Trait-Influencing Variants on the Genome—✦Jinko Graham, Simon Fraser University
12:15 p.m.	Floor Discussion

144 CC-East 9

■ ● Statistical Methods in Detection and Attribution of Changes in Climate Extremes—Invited

Section on Statistics and the Environment, Section on Risk Analysis, The International Environmetrics Society

Organizer(s): Jun Yan, University of Connecticut

Chair(s): Kun Chen, University of Connecticut

10:35 a.m.	Fingerprinting Changes in Climate Extremes with Joint Modeling of Observations and Climate Model Simulation—✦Jun Yan, University of Connecticut; Yujing Jiang, Colorado State University; Zhuo Wang, Shenzhen University, China; Xuebin Zhang, Environment and Climate Change Canada
11:00 a.m.	Exploring Extreme Weather Phenomena by Decomposing Extremal Dependence—✦Dan Cooley, Colorado State University; Yujing Jiang, Colorado State University
11:25 a.m.	Probabilities of Causation of Climate Changes—✦Alexis Hannart, Ouranos
11:50 a.m.	Disc: Xuebin Zhang, Environment and Climate Change Canada
12:15 p.m.	Floor Discussion

145 CC-West 204

■ ● Big Data Statistical Challenges and Opportunities in Industry—Invited

Section on Statistical Consulting, Section on Risk Analysis, National Institute of Statistical Sciences, SSC

Organizer(s): Lingzhou Xue, Penn State University and National Institute of Statistical Sciences

Chair(s): Lingzhou Xue, Penn State University and National Institute of Statistical Sciences

10:35 a.m.	Deep Analytics for Risk Analysis and Mitigation: From NLP Computer Vision to Sensors—✦Siddhartha Dalal, Columbia University
10:55 a.m.	Risk Analysis in Banking—✦Vijayan Nair, 215157
11:15 a.m.	Sound Statistical Inference from Big Data in the Insurance Industry—✦Christopher Haydon Holloman, ICC
11:35 a.m.	Feature Engineering from Scratch—✦Andrew Smith, Google
11:55 a.m.	Disc: James L Rosenberger, NISS (National Institute of Statistical Sciences) and Penn State
12:15 p.m.	Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

146 CC-West 119

● Statistical Physics, Information Theory, and Statistics—Invited

IMS, IEEE Computer Society

Organizer(s): Guy Bresler, Massachusetts Institute of Technology (MIT)

Chair(s): Guy Bresler, Massachusetts Institute of Technology (MIT)

10:35 a.m.	EM Algorithm Achieves the Near-Optimal Rate for Two-Component Symmetric Gaussian Mixtures in $O(Sqrt{N})$ Iterations—✦Yihong Wu, Yale
11:00 a.m.	Additivity of Information in Multilayer Networks via Additive Gaussian Noise Transforms—✦Galen Reeves, Duke University
11:25 a.m.	Exact Recovery in the Ising Blockmodel—✦Quentin Berthet, University of Cambridge
11:50 a.m.	Covering Probability Simplex with Divergence Balls—✦Yuri Polyanskiy, MIT
12:15 p.m.	Floor Discussion

147 CC-West 110

■ ● High-Dimensional Time Series Analysis and Its Applications—Invited

Section on Statistical Learning and Data Science, Statistical and Applied Mathematical Sciences Institute, Committee on Applied Statisticians, SSC

Organizer(s): Ivor Cribben, University of Alberta

Chair(s): Marina Vannucci, Rice University

10:35 a.m.	Analysis of Rapidly Evolving Multivariate Oscillations—✦Sofia C Olhede, University College London; Adam Sykulski, Lancaster; Arthur Guillaumin, UCL; Jonathan Lilly, NWRA; Jeffrey Earley, NWRA
11:00 a.m.	A Joint Analysis of Brain Signal, Genetics, and Behavior—✦Zhaoxia Yu, UCI; Hernando Ombao, King Abdullah University of Science and Technology; Dustin Pluta, University of California, Irvine; Tong Shen, University of California, Irvine
11:25 a.m.	Understanding Cryptocurrency Price Formation from Time Series of Local Blockchain Graph Features—✦Cuneyt Akcora, University of Texas at Dallas; Asim Dey, University of Texas at Dallas; Ceren Abay, University of Texas at Dallas; Yulia Gel, University of Texas at Dallas; Umar Islambekov, University of Texas at Dallas; Murat Kantarcioglu, University of Texas at Dallas
11:50 a.m.	Bayesian Approaches for Estimating Dynamic Functional Network Connectivity in fMRI Data—Michele Guindani, University of California, Irvine; ✦Erik B. Erhardt, University of New Mexico
12:15 p.m.	Floor Discussion

Invited Panels 10:30 a.m.—12:20 p.m.

148 CC-West 118

■ Administrative Records for Survey Methodology and Evidence Building—Invited

Survey Research Methods Section, Government Statistics Section, Social Statistics Section

Organizer(s): Asaph Young Chun, US Census Bureau

Chair(s): Gabriele Durrant, Southampton University

Panelists:	✦Asaph Young Chun, US Census Bureau
	✦Bruce Meyer, University of Chicago
	✦Paul Biemer, RTI Internatinoal
	✦Ingegerd Jansson, Statistics Sweden
12:10 p.m.	Floor Discussion

149 CC-West Ballroom A

■ ● Theory Versus Practice—Invited

General Methodology, IMS

Organizer(s): Ryan Tibshirani, Carnegie Mellon University

Chair(s): Ryan Tibshirani, Carnegie Mellon University

Panelists:	✦Trevor Hastie, Stanford University
	✦John Petkau, University of British Columbia
	✦Richard J Samworth, University of Cambridge
	✦Robert Tibshirani, Stanford University
	✦Larry Wasserman, Carnegie Mellon University
	✦Edward George, Wharton, University of Pennsylvania
	✦Elizaveta Levina, University of Michigan
	✦Nancy Reid, University of Toronto
	✦Bin Yu, UC Berkeley
12:10 p.m.	Floor Discussion

Topic Contributed Sessions 10:30 a.m.—12:20 p.m.

150 CC-East 17

■ ● Lead with Statistics in Medical Device Innovations and Beyond—Topic Contributed

Section on Medical Devices and Diagnostics, Biopharmaceutical Section, Statistics in Biopharmaceutical Research Journal

Organizer(s): Yunling Xu, FDA/CDRH

Chair(s): Rajesh Nair, CDRH/FDA

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

10:35 a.m. Use of Real-World Data and Real-World Evidence for Regulatory Decisions: Opportunities and Challenges—✦Lilly Yue, U.S. Food and Drug Administration; Nelson Lu, U.S. Food and Drug Administration; Yunling Xu, FDA/CDRH

10:55 a.m. A Propensity Score Stratified Bayesian Power Prior Approach for Incorporating Real-World Evidence in Single Group Medical Device Clinical Studies—✦Chenguang Wang, John Hopkins University; Ram Tiwari, Center for Devices and Radiologica Health, FDA; Lilly Yue, U.S. Food and Drug Administration; Yunling Xu, FDA/CDRH

11:15 a.m. Bayesian Approach for Benefit-Risk Assessment with Examples—✦Ram Tiwari, Center for Devices and Radiologica Health, FDA

11:35 a.m. Statistics of Counting Molecules for Precision Medicine—✦Svilen Tzonev,

11:55 a.m. Disc: Gregory Campbell, GCStat Consulting

12:15 p.m. Floor Discussion

151 CC-West 224

■ ● #LeadwithStatistics in the Social Sciences—Topic Contributed

Section on Bayesian Statistical Science, Social Statistics Section, Business and Economic Statistics Section

Organizer(s): Tyler McCormick and Adrian Raftery, University of Washington

Chair(s): Bailey Fosdick, Colorado State University

10:35 a.m. Model Selection, Contingency Tables and Human Mobility—✦Adrian Dobra, University of Washington

10:55 a.m. Covariate Selection for Generalizing Experimental Results—✦Erin Hartman, UCLA; Naoki Egami, Princeton University

11:15 a.m. Estimating Unmet Need for Contraceptive Methods in the World's Poorest Countries—✦Leontine Alkema, University of Massachusetts Amherst; Niamh Cahill, University College Dublin; Chuchu Wei, University of Massachusetts Amherst

11:35 a.m. Sharing of Network Data: Differentially Private Synthetic Networks—✦Aleksandra Slavkovic, Pennsylvania State University; Vishesh Karwa, Ohio State University; Pavel Krivitsky, University of Wollongong

11:55 a.m. Disc: Adrian Raftery, University of Washington

12:15 p.m. Floor Discussion

152 CC-West 205

■ ● Frontiers of High-Dimensional and Complex Data analysis—Topic Contributed

International Chinese Statistical Association, Biometrics Section, Section on Nonparametric Statistics, SSC

Organizer(s): Yichuan Zhao, Georgia State University

Chair(s): Yangxin Huang, University of South Florida

10:35 a.m. Data Enriched Generalized Linear Methods—✦Sayan Dasgupta, Fred Hutchinson Cancer Research Center; Cheng Zheng, University of Wisconsin at Milwaukee ; Ying Qing Chen, Fred Hutchinson Cancer Research Center; Asad Haris, University of Washington

10:55 a.m. Statistically and Numerically Efficient Independence Tests That Are Based on Distances—✦Xiaoming Huo, Georgia Institute of Technology, ; Cheng Huang, Georgia Institute of Technology

11:15 a.m. Variable Selection in Partially Linear Additive Hazards Model with Grouped Covariates and a Diverging Number of Parameters—✦Xuewen Lu, University of Calgary; Arfan Afzal, University of Calgary

11:35 a.m. A Bernstein-Type Inequality for U-Statistics Under Mixing Conditions—✦Fang Han, University of Washington; Yandi Shen, University of Washington; Daniela Witten, University of Washington

11:55 a.m. Ensemble Estimation and Variable Selection with Semiparametric Regression Models—✦Sunyoung Shin, University of Texas at Dallas; Yufeng Liu, University of North Carolina at Chapel Hill; Stephen Cole, University of North Carolina at Chapel Hill; Jason P Fine, University of North Carolina at Chapel Hill

12:15 p.m. Floor Discussion

153 CC-West 202

● Creating and Sustaining an Undergraduate Research Program—Topic Contributed

Section on Statistical Education

Organizer(s): Justin Blaise Post, North Carolina State University

Chair(s): Nathan Tintle, Dordt College

10:35 a.m. Understanding the Benefits and Barriers of Undergraduate Research in Statistics—✦Kelly McConville, Swarthmore College; Joseph Nolan, Northern Kentucky University; Vittorio Addona, Macalester College; Nathan Tintle, Dordt College; Dennis Pearl, Penn State University

10:55 a.m. Mentoring Undergraduate Research Students in the Spirit of the Liberal Arts: Adding Depth to Breadth—✦Vittorio Addona, Macalester College

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

11:15 a.m. Implementing a Department-Wide Undergraduate Research Program—✦Justin Blaise Post, North Carolina State University

11:35 a.m. Using University Athletic Programs as a Platform for Undergraduate Research—✦Gilbert Fellingham, Brigham Young University

11:55 a.m. Finding Undergraduate Research Projects: Pipelines Within a University—✦Emily Griffith, NC State University; Stephany Dunstan, Office of Assessment, North Carolina State University

12:15 p.m. Floor Discussion

154 CC-West 122

■ ● Sports Analysis: New Insights—Topic Contributed

Section on Statistics in Sports, Canadian Statistical Sciences Institute, SSC

Organizer(s): Ivor Cribben, University of Alberta

Chair(s): Ivor Cribben, University of Alberta

10:35 a.m. Net Best-Ball Team Composition in Golf—✦Tim Swartz, Simon Fraser University; Yifan Wu, Simon Fraser University; Peter Chow-White, Simon Fraser University

10:55 a.m. Goals in Soccer: Factors That Matter—✦Jan Vecer, Charles University

11:15 a.m. The Hot Hand Theory in Hockey: a Multilevel Logistic Regression Analysis—✦Likang Ding, ; Armann Ingolfsson, University of Alberta; Ivor Cribben, University of Alberta; Monica Tran, University of Alberta

11:35 a.m. Manifestations of Loss Aversion in Profession Golf—✦Ryan Elmore, University of Denver; Andrew Urbaczewski, University of Denver

11:55 a.m. Degree of Weak and Strong Links in Pickleball Doubles Games—✦Paramjit Gill, University of British Columbia Okanagan; Tim Swartz, Simon Fraser University

12:15 p.m. Floor Discussion

155 CC-West 203

■ ● Implementing Research-Based Recommendations in Ongoing Programs—Topic Contributed

Government Statistics Section, Survey Research Methods Section

Organizer(s): Katherine J Thompson, U.S. Census Bureau

Chair(s): Brian Monsell, U.S. Census Bureau

10:35 a.m. Challenges in Implementing a New Imputation Method into Production in the 2017 Economic Census or What to Do When the Research Approach Oversimplifies the Problem—✦Katherine J Thompson, U.S. Census Bureau; Willam Davie Jr., U.S. Census Bureau; Matthew Thompson, U.S. Census Bureau; Scot Dahl, U.S. Census Bureau

10:55 a.m. Variance Estimation for Product Sales in the 2017 Economic Census: Utilizing Multiple Imputation to Account for Sampling and Imputation Variance—✦Matthew Thompson, U.S. Census Bureau; Katherine J Thompson, U.S. Census Bureau

11:15 a.m. Statistically Integrated Publication System for the Economic Census Synthetic Microdata—✦Hang Joon Kim, University of Cincinnati; Katherine J Thompson, U.S. Census Bureau

11:35 a.m. Model-Assisted Regression Tree Estimator in the Occupational Employment Statistics Survey—✦Daniell Toth, Bureau of Labor Statistics; Kelly McConville, Swarthmore College

11:55 a.m. Disc: Wesley Yung, Statistics Canada

12:15 p.m. Floor Discussion

156 CC-East 14

■ ● Statistical Aspects in Stochastic and Deterministic Simulation—Topic Contributed

Section on Physical and Engineering Sciences

Organizer(s): Qiong Zhang, Virginia Commonwealth University; Wei Xie, Rensselaer Polytechnic Institute

Chair(s): Youngdeok Hwang, Sungkyunkwan University

10:35 a.m. A Construction of Cost-Efficient Designs with Guaranteed Repeated Measurements on Interaction Effects—✦Frederick Kin Hing Phoa, Academia Sinica

10:55 a.m. A Simulation-Based Prediction and Optimization Framework for Bio-pharmaceutical Supply Chain Dynamic Risk Management—✦Wei Xie, Rensselaer Polytechnic Institute; Pu Zhang, Rensselaer Polytechnic Institute; Ilya O. Ryzhov, University of Maryland

11:15 a.m. A Latent Variable Approach for Handling Qualitative Factors in Gaussian Process Modeling of Computer Experiments—✦Daniel W Apley, Northwestern University; Yichi Zhang, Northwestern University

11:35 a.m. Optimization-Based Calibration of Simulation Input Models—✦Henry Lam, Columbia University; Aleksandrina Goeva, Broad Institute; Huajie Qian, Columbia University; Bo Zhang, IBM Research AI

11:55 a.m. Risk Management for Large Portfolios of Variable Annuities via Simulation—✦Mingbin Feng, University of Waterloo

12:15 p.m. Floor Discussion

157 CC-West 115

■ Constructing Profiles of Local Communities—Topic Contributed

Social Statistics Section

Organizer(s): Joshua Goldstein, Social and Decision Analytics Laboratory, Virginia Tech

Chair(s): David Higdon, Virginia Tech

10:35 a.m. The Science of Data Science - Developing a Data Framework and Methods to Bring the All Data Revolution to Communities—✦Stephanie Shipp, Biocomplexity Institute of Virginia Tech; Sallie Keller, Social & Decisional Analytics Lab, Virginia Tech

10:55 a.m. Community Profiling with Composite Indicators—✦Vicki Lancaster, Biocomplexity Institute of Virginia Tech- Social Decision & Analytics Lab

11:15 a.m. Constructing a Synthetic Population for Community Profiling Using Publicly Available Data—✦Joshua Goldstein, Social and Decision Analytics Laboratory, Virginia Tech; David Higdon, Virginia Tech

11:35 a.m. Potts Models for Record Linkage in Albuquerque Crime Data—✦Ian Crandell, Virginia Tech

11:55 a.m. Disc: Barbara Robles, Federal Reserve Board

12:15 p.m. Floor Discussion

158 CC-West 120

● Algebraic Methods in Statistics—Topic Contributed

IMS

Organizer(s): Elina Robeva, MIT

Chair(s): Jose Israel Rodriguez, University of Chicago

10:35 a.m. Model Selection and Local Geometry—✦Robin Evans,

10:55 a.m. Low Algebraic Dimension Matrix Completion—Rebecca Willett, Univ of Wisconsin; Greg Ongie, University of Michigan; ✦Daniel Pimentel-Alarcon, Georgia State University; Laura Balzano, University of Michigan; Robert Nowak, University of Wisconsin

11:15 a.m. Your Dreams May Come True with MTP2—✦Caroline Uhler, Massachusetts Institute of Technology

11:35 a.m. Totally Positive Exponential Families, Graphical Models, and Convex Optimization—✦Piotr Zwiernik, Universitat Pompeu Fabra

11:55 a.m. Disc: Seth Sullivant, North Carolina State University

12:15 p.m. Floor Discussion

159 CC-West 219

■ New Statistical Methods in Phylogenetics—Topic Contributed

Biometrics Section

Organizer(s): Arindam RoyChoudhury, Cornell University

Chair(s): Katherine Thompson, University of Kentucky

10:35 a.m. Shannon Information Collapse for Phylogenetic Experimental Design—✦Jeffrey Townsend, Yale University

10:55 a.m. Likelihood Estimation of Large Species Trees from Multiple Samples Per Species, Using the Coalescent Process—✦Arindam RoyChoudhury, Cornell University

11:15 a.m. Why the Dramatic Difference Between Distance-Based and Maximum Likelihood Phylogenetic Trees?—✦Xuhua Xia, University of Ottawa

11:35 a.m. Beyond Random-Walk MCMC for Bayesian Phylogenetics—✦Frederick Matsen, Fred Hutchinson Cancer Research Center

11:55 a.m. Phylogenomic Inference in the Presence of Gene Flow Using Coalescent Site Pattern Probabilities—✦Laura Kubatko, Ohio State University; Colby Long, Mathematical Biosciences Institute, The Ohio State University

12:15 p.m. Floor Discussion

160 CC-West 304/305

■ Quantifying Uncertainty—Topic Contributed

Uncertainty Quantification for Complex Systems Interest Group, Section on Physical and Engineering Sciences, Section on Statistics in Defense and National Security

Organizer(s): Earl Christopher Lawrence, Los Alamos National Laboratory

Chair(s): Earl Christopher Lawrence, Los Alamos National Laboratory

10:35 a.m. A Geometric Approach for Calibrating Computer Models with Misaligned Functional Output—✦Lauren Hund, ; James Derek Tucker, Sandia National Laboratories; Justin Brown, Sandia National Laboratories

10:55 a.m. Bayesian Framework for Embedded Model Error Representation and Quantification—✦Khachik Sargsyan, Sandia National Labs/California; Xun Huan, Sandia National Labs/California; Habib Najm, Sandia National Labs/California

11:15 a.m. Modeling Uncertainty in Physical Security Systems—✦Aparna Huzurbazar, Los Alamos National Laboratory

11:35 a.m. Uncertainty Quantification of Injury Risk Measures—✦Dorin Drignei, Oakland University

11:55 a.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

161 CC-East 10

■ ● Practical and Methodological Issues Related to Profiling Hospitals in the United States—Topic Contributed

Health Policy Statistics Section

Organizer(s): Jessica Lavery, Memorial Sloan Kettering Cancer Center

Chair(s): Jessica Lavery, Memorial Sloan Kettering Cancer Center

10:35 a.m. The COPSS White Paper Committee Report on Statistical Issues in Assessing Hospital Performance—✦Arlene Ash, University of Massachusetts Medical School

10:55 a.m. Methods of Monitoring Outcomes of Medical Providers—✦John Kalbfleisch, University of Michigan; Zhi He, University of Michigan; Lu Xia, University of Michigan; Yanming Li, University of Michigan

11:15 a.m. Adjusting Quality Rankings for Patient Socioeconomic Characteristics—✦Alan Zaslavsky, Harvard University Medical School

11:35 a.m. Disc: Kathy Panageas, Memorial Sloan Kettering Cancer Center

11:55 a.m. Floor Discussion

162 CC-West 215/216

■ ● Statistical Challenge and Issues in Vaccine Development—Topic Contributed

Biometrics Section, Biopharmaceutical Section

Organizer(s): Frank G Liu, Merck Sharp & Dohme Inc.

Chair(s): Fabian Tibaldi, GSK

10:35 a.m. Recent Challenges in Vaccine Clinical Development—✦Tsai-Lien Lin, FDA/CBER

10:55 a.m. Bridging to Bridges in Vaccine Development: Challenges in Comparing Multi-Serotype Vaccines—✦Jonathan Hartzel, Merck

11:15 a.m. Application of Futility Testing in Vaccine Outcome Studies (With a Recent Example)—✦Aiying Chen, Sanofi Pasteur; Scott Patterson, Sanofi Pasteur; Ehab Bassily, Sanofi Pasteur

11:35 a.m. Epidemiological Modeling to Guide Efficacy Study Design Evaluating Vaccines to Prevent Emerging Diseases—✦An Vandebosch, Janssen; Joris Menten, Janssen ; Guillermo Herrera-Taracena, Janssen

11:55 a.m. Maximum Diversity Weighting for Biomarkers with Application in HIV-1 Vaccine Studies—✦Zonglin He, Fred Hutchinson Cancer Research Center; Youyi Fong, Fred Hutchinson Cancer Research Center

12:15 p.m. Floor Discussion

Contributed Sessions 10:30 a.m.—12:20 p.m.

163 CC-West 212

SPEED: Longitudinal/Correlated Data—Contributed

Biometrics Section, Health Policy Statistics Section, Section on Statistics in Epidemiology, ENAR

Chair(s): Jonathan Gelfond, University of Texas Health San Antonio

10:35 a.m. Effect of Longitudinal Intracranial Pressure on Ordinal Glasgow Outcome Scale Using a Joint Model Approach—✦Maria Laura Rubin, The University of Texas MD Anderson Cancer Center; Wenyaw Chan, University of Texas Health Science Center at Houston; Jose-Miguel Yamal, The University of Texas Health Science Center at Houston; Claudia Sue Robertson, Baylor College of Medicine

10:40 a.m. Mixed Latent Markov Models for Longitudinal Multiple Diagnostics Data with an Application to Salmonella in Malawi—✦Marc Henrion, Malawi Liverpool Wellcome Trust Clinical Research Programme; Angeziwa Chirambo, Malawi Liverpool Wellcome Trust Clinical Research Programme; Tonney C. Nyirenda, College of Medicine; Melita Gordon, Malawi Liverpool Wellcome Trust Clinical Research Programme

10:45 a.m. Modeling a Longitudinal Covariate as Continuous Time Markov Chain in a Survival Framework—✦Ting-Yu Chen, The University of Texas Health Science Center at Houston; Wenyaw Chan, University of Texas Health Science Center at Houston; Qiuling Shi, The University of Texas MD Anderson Cancer Center; Xin Shelley Wang, The University of Texas MD Anderson Cancer Center; Charles Cleeland, The University of Texas MD Anderson Cancer Center

10:50 a.m. Horizontal and Vertical Effects in a Logistic Regression Model—✦Diana Gonzalez, Arizona State University

10:55 a.m. An R2 Statistic for Covariance Model Selection in the Linear Mixed Model—✦Byron Jaeger, University of Alabama at Birmingham; Lloyd Edwards, University of Alabama at Birmingham; Matthew Gurka, University of Florida

11:00 a.m. Using Multitrajectory Modeling in Latent Class Growth Analysis to Identify Multi-Symptom Trajectories Over Time—✦Wei Pan, Duke University; Mary C Hooke, University of Minnesota School of Nursing; Cheryl Rodgers, Duke University School of Nursing; Marilyn Hockenberry, Duke University School of Nursing

11:05 a.m. Propensity Scores to Reduce Bias Due to Treatment Compliance Change Over Time in Longitudinal Randomized Clinical Trials—✦Huaqing Zhao, Temple University; Susan G Fisher, Temple University School of Medicine; Bethany Joy Foster, McGill University

11:10 a.m. A Novel Robust Approach for Analysis of Longitudinal Data—✦Yuexia Zhang, Fudan University; Guoyou Qin, Fudan University; Zhongyi Zhu, Fudan University

11:15 a.m. Comparisons of Modeling Methods on Longitudinal and Survival Data: Identifying Use of Repeat Biomarker Measurements to Predict Time-To-Event Outcome in Cancer Research—✦Meng Ru, Icahn School of Medicine at Mount Sinai; Erin Moshier, Icahn School of Medicine at Mount Sinai; Madhu Mazumdar, Icahn School of Medicine at Mount Sinai

11:20 a.m. Sampling Studies for Longitudinal Functional Data Analysis—✦Toni Jassel, ; Andrada E Ivanescu, Montclair State University

11:30 a.m. Power and Sample Size Requirements for GEE Analyzes of Cluster Randomized Crossover Trials—✦Fan Li, Duke University; Andrew Forbes, Monash University; Elizabeth L. Turner, Duke Global Health Institutes; John S. Preisser, University of North Carolina at Chapel Hill

11:35 a.m. Evaluating Quantile Estimation Methods for Setting Normal Values for Longitudinal Measures—✦Jeffrey Slezak, Kaiser Permanente; Steven J Jacobsen, Kaiser Permanente; Stephanie Reading, Kaiser Permanente

11:40 a.m. Survival Analysis Using Intensive Longitudinal Data and Irregular Moments of Reporting—✦Trent Lalonde, Applied Statistics Program, University of Northern Colorado; Kristina T Phillips, University of Northern Colorado; Michael M Phillips, University of Northern Colorado

11:45 a.m. Coherence-Based Time Series Clustering for Brain Connectivity Visualization—✦Carolina Euan Campos, KAUST; Ying Sun, KAUST; Hernando Ombao, King Abdullah University of Science and Technology

11:50 a.m. Interrupted Time Series Analysis to Evaluate the Effect of a Multicenter Collaborative Effort to Improve Care for Adult Intensive Care Patients—✦Alai Tan, Ohio State University College of Nursing; Michele C. Balas, Ohio State University College of Nursing

11:55 a.m. A Comparison of Modeling Approaches for Stepped-Wedge Cluster Randomized Trials That Include Multilevel Clustering, Confounding by Time, and Effect Modification—✦Lance Ford, University of Oklahoma Health Sciences Center; Julie A Stoner, University of Oklahoma Health Sciences Center; Daniel Zhao, OU Health Sciences Center; Tabitha Garwe, University of Oklahoma Health Sciences Center; Ann Chou, University of Oklahoma Health Sciences Center; Daniel Duffy, University of Oklahoma-Tulsa

12:00 p.m. Unified Mediation Analysis Approach to Complex Data of Mixed Types via Copula Models—✦Wei Hao, University of Michigan; Peter X.-K. Song, University of Michigan

12:05 p.m. Joint Modeling of Mean, Variance, Skewness, and Kurtosis—✦Katherine E Irimata, Arizona State University; Jeffrey R Wilson, Arizona State University

12:10 p.m. Vine Copula Models for Family Data Analysis—✦Yihao Deng, Purdue University Fort Wayne; N. Rao Chaganty, Old Dominion University

12:15 p.m. The Implementation of Moderated T-Tests in Linear Mixed-Effects Models—✦Lianbo Yu, Ohio State University; Jianying Zhang, Ohio State University; Guy Brock, Ohio State University College of Medicine; Soledad Fernandez, The Ohio State University

164 CC-West 209

SPEED: Causal Inference and Related Methodology—Contributed

Section on Statistics in Epidemiology

Chair(s): Miguel Hernan, Harvard School of Public Health

10:35 a.m. Estimating Average Causal Treatment Effects Utilizing Fractional Imputation When Confounders Are Subject to Missingness—✦Nathaniel Corder, North Carolina State University; Shu Yang, North Carolina State University

10:40 a.m. Methods Used to Account for Neighbourhood Self-Selection in Studies of Neighbourhood Effects on Physical Activity and Nutrition: a Systematic Review—✦Karen Elaine Lamb, Murdoch Children's Research Institute, Royal Children's Hospital; Lukar Thornton, Deakin University; Tania King, University of Melbourne; Kylie Ball, Deakin University; Rebecca Bentley, University of Melbourne; Neil Coffee, University of Canberra; Mark Daniel, University of Canberra

10:45 a.m. A Comparison of Methods to Estimate Survival Curves Under Time-Varying Treatments—✦Lucia C. Petito, Harvard T.H. Chan School of Public Health; Sonja A. Swanson, Erasmus Medical Center; Miguel Hernan, Harvard School of Public Health

10:50 a.m. Sufficient Cause Interaction for Ordinal and Categorical Outcomes—✦Jaffer Zaidi, ; Tyler VanderWeele, Harvard University

10:55 a.m. Combining Inverse Probability Weighting and Multiple Imputation to Adjust for Selection Bias in Electronic Health Records-Based Research—✦Tanayott Thaweethai, Harvard T.H. Chan School of Public Health; Sebastien Haneuse, Harvard T.H. Chan School of Public Health; David Arterburn, Kaiser Permanente Washington Health Research Institute

11:00 a.m. Efficient Design and Analysis of Cluster Randomized Trials—✦Hengshi Yu, University of Michigan, Ann Arbor; Fan Li, Duke University; John A. Gallis, Duke University; Elizabeth L. Turner, Duke Global Health Institutes

11:05 a.m. Maximum Likelihood Estimation of the K Parameter in the Poly-K Trend Test for Time-to-Event Data—✦Anna Korpak, VA ERIC; Barbara McKnight, University of Washington

11:10 a.m. A Bayesian Nonparametric Approach to Estimate Causal Effects of Mediation in the Presence of Nonignorable Missingness—✦Dandan Xu, US Food and Drug Administration; Michael Daniels, University of Florida

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

11:15 a.m. Multivariate Mediation Analysis with a Multi-Categorical Exposure Variable: An Application to Explore Racial and Ethnic Disparities in Obesity—✦Qingzhao Yu, Louisiana State University Health Sciences Ctr; Lin Zhu, Louisiana State University Health Sciences Ctr; Bin Li, Louisiana State University

11:20 a.m. Balancing Scores Weighing Methods and Sensitivity Analysis to Unfold Health Disparity—✦Chen-Pin Wang, University of Texas Health San Antonio

11:30 a.m. Power Evaluation for Covariate Balancing Propensity Score Methods—✦Byeong Yeob Choi, University of Texas Health Science Center at San Antonio; Chen-Pin Wang, University of Texas Health San Antonio; Joel Michalek, University of Texas Health Science Center at San Antonio; Jonathan Gelfond, University of Texas Health San Antonio

11:35 a.m. Embedding Observational Studies into Hypothetical Fractional-Factorial Experiments—✦Nicole Pashley, Harvard University; Marie-Abele Bind, Harvard University

11:40 a.m. Using Validation Data to Adjust the Inverse Probability Weighting Treatment Effect Estimator for Misclassified Treatment—✦Danielle Braun, Harvard T. H. Chan School of Public Health; Corwin Zigler, Harvard T.H. Chan School of Public Health; Francesca Dominici, Harvard T. H. Chan School of Public Health; Malka Gorfine, Tel Aviv University

11:45 a.m. Leveraging Multiple Study Designs and Statistical Methods to Evaluate Comparative Effectiveness of Asthma Medications—✦Tebeb Gebretsadik, Vanderbilt University Medical Center; Pingsheng Wu, Vanderbilt University; Rees L Lee, U. S. Navy; Amber M Evans, Health ResearchTX LLC; Tan Ding, Vanderbilt University Medical Center; Nicholas M Sicignano, Health Research Tx ; Ann Wu, Harvard Medical School; Carlos Iribarren, Kaiser Permanente Division of Research; Butler Melissa, Kaiser Permanente; Chang Yu, Vanderbilt University Medical Center; William Dupont, Vanderbilt University Medical Center; Christina Fox, Health ResearchTx; Tina V Hartert, Vanderbilt University Medical Center

11:50 a.m. Gaussian Process Propensity Scores for Multiple Treatment Regimes—✦Brian Vegetabile, UC Irvine; Daniel L. Gillen, University of California, Irvine; Hal Stern, University of California, Irvine

11:55 a.m. Instrumental Variable Estimators of Exposure Effects for Competing Risks Data—✦Sai Dharmarajan, University of Michigan-School of Public Health; Douglas E. Schaubel, University of Michigan, Ann Arbor

12:00 p.m. Accounting for Variation in Instrumental Effect Estimates Leads to More Precise Estimates of Causal Effects in MR Studies—✦Richard Barfield, Fred Hutchinson Cancer Research Center; Li Hsu, Fred Hutchinson Cancer Research Center, USA

12:05 p.m. Estimating Causal Effect by Difference in Difference via Random Forest—✦Tomoshige Nakamura, Graduate School of Science and Technology, Keio University; Mihoko Minami, Keio University

12:10 p.m. Assessing Therapeutic Equivalence of Brand and Generic Drugs Using Observational Data—✦Lamar Hunt, Johns Hopkins Bloomberg SPH & OptumLabs Visiting Fellows; Daniel Scharfstein, Johns Hopkins University; Irene Murimi, Johns Hopkins Bloomberg SPH & OptumLabs Visiting Fellows; Jodi Segal, Johns Hopkins Bloomberg SPH & OptumLabs Visiting Fellows; Ravi Varadhan, Johns Hopkins University; Ramin Mojtabai, Johns Hopkins Bloomberg SPH

165 CC-West 208

SPEED: Environmetrics: Spatio-Temporal and Other Models—Contributed

Section on Statistics and the Environment, Section on Physical and Engineering Sciences

Chair(s): Rodrigue Ngueyep, IBM Research

10:35 a.m. Tools for Simulation-Based Uncertainty Quantification in Remote Sensing Inverse Problems—✦Jonathan Hobbs, Jet Propulsion Laboratory; Amy Braverman, Jet Propulsion Laboratory; Ali Behrangi, University of Arizona; Sandy Burden, University of Wollongong; Eric Fetzer, Jet Propulsion Laboratory; Kyo Lee, Jet Propulsion Laboratory; Hai Nguyen, Jet Propulsion Laboratory

10:40 a.m. A Bayesian Approach to Trend Filtering for Spatially Confounded Data—✦Adam Walder,

10:45 a.m. Evaluating Proxy Influence and Reconstruction Skill in Data Assimilation Based Climate Field Reconstructions Using Extremal Depth—✦Trevor Harris, University of Illinois at Urbana-Champaign, Statistics; Bo Li, University of Illinois at Urbana-Champaign; Nathan Steiger, Columbia University, Lamont-Doherty Earth Observatory; Jason Smerdon, Columbia University, Lamont-Doherty Earth Observatory; Justin Jacobs, Sandia National Laboratories

10:50 a.m. Addressing Time of Measurement Bias in Records of Daily Temperature Extrema: a Spatio-Temporal Imputation Strategy—✦Maxime Rischard, Harvard Statistics; Natesh Pillai, Harvard Statistics; Karen A. McKinnon, National Center for Atmospheric Research; Descartes Labs

10:55 a.m. Preferential Sampling in Geostatistics—✦Daniel Dinsdale, The University of British Columbia; Matias British Salibian-Barrera, The University of British Columbia

11:00 a.m. Spline Smoothing in Dendrochronology—✦Nicholas Bussberg, Indiana University; Justin Maxwell, Indiana University; Scott Robeson, Indiana University; Chunfeng Huang, Indiana University

11:05 a.m. Discriminant Analysis for High-Dimensional Spatio-Temporal Data—✦Rejaul Karim, Michigan State University; Taps Maiti, Michigan State University; Chae Young Lim, Seoul National University

11:10 a.m. Combining Satellite Imagery and Numerical Model Simulation to Estimate Ambient Air Pollution: An Ensemble Averaging Approach—✦Nancy Murray, Emory University; Howard Chang, Emory University; Heather Holmes, University of Nevada, Reno; Yang Liu, Emory University

11:15 a.m. Identifying Epigenetic Regions Exhibiting Critical Windows of Susceptibility to Air Pollution—✦Michele Zemplenyi, Harvard University; Mark J Meyer, Georgetown University; Brent A. Coull, Harvard TH Chan School of Public Health

11:20 a.m. Regionalization of Multi-Scale Air Pollutants Based on Functional Principal Component Analysis—✦Decai Liang, Peking University; Haozhe Zhang, Iowa State University; Hui Huang, Sun Yat-sen University

11:30 a.m. Uncertainty Quantification for Remote Sensing Data: Sensitivity to a Priori Conditions and Additional Inputs in Optimal Estimation Retrieval Algorithms—✦Joaquim Teixeira, Jet Propulsion Laboratory; Jonathan Hobbs, Jet Propulsion Laboratory; Amy Braverman, Jet Propulsion Laboratory; Michael Gunson, Jet Propulsion Laboratory

11:35 a.m. Nonstationarity in Spatiotemporal Fisheries Models—✦John Best, School of Aquatic and Fishery Sciences, University of Washington

11:40 a.m. Covariate-Adjusted Recurrent Processes on Network and an Application to Geyser Eruption Prediction—✦Zhongnan Jin, Virginia Tech; Yili Hong, Virginia Tech

11:45 a.m. Bayesian Estimation of Toluene and Trichloroethylene Biodegradation Kinetic Parameters—✦Feng Yu, RTI International; Breda Munoz, RTI International

11:50 a.m. An Application of Monothetic Clustering to Data with Circular Variables—✦Tan V Tran, Montana State University; John C Priscu, Montana State University; Mark Greenwood, Montana State University; Marie Saback·, University of South Bohemia

11:55 a.m. Evaluating the Impact of Using Residential Histories When Estimating Environmental Exposure Effects—✦Anny-Claude Joseph, Virginia Commonwealth University; David C. Wheeler, Virginia Commonwealth University

166 CC-West 213

SPEED: Topics in Bayesian Analysis—Contributed

Section on Bayesian Statistical Science, Section on Statistical Computing

Chair(s): Bettina Grün, Johannes Kepler Universität

10:35 a.m. Variable Selection with Missing Data Imputation in the High-Dimensional Setting—✦Soeun Kim, The University of Texas Health Science Center at Houston; Yunxi Zhang, The University of Texas Health Science Center at Houston

10:40 a.m. Geometric Sensitivity Measures for Nonparametric Bayesian Models in Density Estimation—✦Abhijoy Saha, The Ohio State University; Sebastian Kurtek, The Ohio State University; Karthik Bharath, The University of Nottingham

10:45 a.m. Using Modified Competitive Swarm Optimizer to Find D-Optimal Designs for Complicated Logistic Models—✦Zizhao Zhang, UCLA; Weng Kee Wong, UCLA

10:50 a.m. Uncertainty in the Design Stage of Two-Stage Bayesian Propensity Score Analysis—✦Shirley Liao,

10:55 a.m. A Theoretical Framework for Bayesian Nonparametric Regression: Orthonormal Random Series and Rates of Contraction—✦Fangzheng Xie, Johns Hopkins University; Wei Jin, Johns Hopkins University; Yanxun Xu, Johns Hopkins University

11:00 a.m. A Bayesian Semiparametric Joint Model for Longitudinal and Survival Data—✦Pengpeng Wang, Florida State University; Jonathan R. Bradley, Florida State University; Elizabeth H. Slate, Florida State University

11:05 a.m. Pseudo-Marginal Markov Chain Monte Carlo via Random Riemann Sums for Stochastically Scaled Gaussian Vectors—✦Patrick Muchmore,

11:10 a.m. A Bayesian Model Selection Approach to Multiple Comparisons—✦Javier E. Flores, University of Iowa; Andrew Neath, SIU Edwardsville; Joseph Cavanaugh, University of Iowa

11:15 a.m. Consistent Group Selection Using Bayesian High-Dimensional Modeling—✦Xinming Yang, University of Illinois at Urbana-Champaign; Naveen Naidu Narisetty, University of Illinois at Urbana Champaign

11:20 a.m. Melded Bayesian Inference for Stochastic Theoretical Models with Applications in Agent Based Modeling—✦Mark Dawkins,

11:30 a.m. Generalized Species Sampling Priors for Whole-Brain fMRI Analysis—✦Yadong Lu, University of California, Irvine; Michele Guidani, University of California, Irvine

11:35 a.m. Bayesian Cumulative Probability Models for Continuous Response Variables—✦Nathan Thomas James, Vanderbilt University; Frank Harrell, Vanderbilt University, Dept of Biostatistics; Bryan E Shepherd, Vanderbilt University School of Medicine

11:40 a.m. Bayesian Modular and Multiscale Regression—✦Michele Peruzzi, ; David B Dunson, Duke University

11:45 a.m. Bayesian State Space Modeling of Physical Processes in Industrial Hygiene—✦Nada Abdalla,

11:50 a.m. Combining Predictive Mean Matching with the Penalized Spline of Propensity Prediction Method When Performing Multiple Imputation—✦Jay Xu, ; Roee Gutman, Brown University

11:55 a.m. Dose Finding Methods Using Two Endpoints in Early Clinical Studies—✦Kyounghwa Bae, Janssen Research & Development, LLC; Zhentao Tong, North Carolina State University ; Vladimir Dragalin, Janssen R&D

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

12:00 p.m. Bayesian Model Selection for Markov Chains Using Sparse Probability Vectors—✦Matthew Heiner, UC Santa Cruz; Athanasios Kottas, UC Santa Cruz; Stephan Munch, NOAA

12:05 p.m. A Combinatoric Search for Clustered Levels in Categorical Predictors via Bayesian Model Selection—✦Thomas Metzger, Virginia Tech; Christopher Franck, Virginia Tech

12:10 p.m. Uncertainty in Probabilistic Weighted Multidimensional Scaling—✦Lata Kodali, ; Leanna House, Virginia Tech

Contributed Sessions 10:30 a.m.—12:20 p.m.

167 CC-West 114

■ **Statistical Computing and Statistical Graphics: Student Paper Award and Chambers Statistical Software Award—Contributed**

Section on Statistical Computing

Chair(s): Hadley Wickham, RStudio

10:35 a.m. Theory Informs Practice: Smoothing Parameters Selection for Smoothing Spline ANOVA Models in Large Samples—✦Xiaoxiao Sun, University of Georgia; Wenxuan Zhong, University of Georgia; Ping Ma, University of Georgia

10:50 a.m. MM Algorithms for Variance Components Models—✦Liuyi Hu, North Carolina State University; Hua Zhou, UCLA; Jin Zhou, University of Arizona; Kenneth Lange, UCLA

11:05 a.m. BRISC: Bootstrap for Rapid Inference on Spatial Covariances—✦Arkajyoti Saha, Johns Hopkins Bloomberg School of Public Health; Abhi Datta, Johns Hopkins Bloomberg School of Public Health

11:20 a.m. Calendar-Based Graphics for Visualizing People's Daily Schedules—✦Earo Wang, Monash University; Dianne Cook, Monash University; Rob J Hyndman, Monash University

11:35 a.m. Edward: a Library for Probabilistic Machine Learning and Statistics—✦Dustin Tran, Columbia University; David Blei, Columbia University

11:50 a.m. Liftr: An R Package for Persistent Reproducible Research—✦Nan Xiao, Central South University

12:05 p.m. Floor Discussion

168 CC-West 218

■ **Causal Inference—Contributed**

Biometrics Section

Chair(s): Robert E. Johnson, Vanderbilt University

10:35 a.m. Joint Testing in High-Dimensional Instrumental Variables Regression with an Application to Genomics Data—✦Jiarui Lu, University of Pennsylvania; Hongzhe Li, University of Pennsylvania

10:50 a.m. Multiply Robust Estimation of Causal Quantile Treatment Effects—✦Yuying Xie, University of Waterloo; Cecilia Cotton, University of Waterloo; Yeying Zhu, University of Waterloo

11:05 a.m. Sensitivity Analysis for Unmeasured Confounding in Meta-Analyzes—✦Maya Mathur, Harvard University; Tyler VanderWeele, Harvard University

11:20 a.m. A Unified Approach to the Statistical Evaluation of Differential Vaccine Efficacy—✦Erin Gabriel, Karolinska Institute; Dean Follmann, NIAID

11:35 a.m. Generalized Causal Mediation and Path Analysis Using the R Gmediation Package—✦Jeffrey Albert, Case Western Reserve University

11:50 a.m. Nonparametric Mediation Analysis for Investigating the ROle of Microbiome Health—✦Kyle Carter, University of Arizona; Meng Lu, University of Arizona; Lingling An, University of Arizona

12:05 p.m. Floor Discussion

169 CC-East 19

Macroeconomic Dynamics—Contributed

Business and Economic Statistics Section

Chair(s): Eunice Kim, iCIMS

10:35 a.m. Asymmetric Behavior of Current Account Sustainability—✦Luis Melo, Banco De La Republica; Daniel OrdoÒez, Universidad Nacional; Oscar Valencia, Banco de la Republica (Central Banck of Colombia)

10:50 a.m. Do the Federal Reserve's Greenbook Forecasts Have Additional Qualitative Information Over the Survey of Professional Forecasters' Forecasts: Multicategorical Variables Approach—✦Yoichi Tsuchiya, Tokyo University of Science; Kenta Eto, Tokyo University of Science

11:05 a.m. The Wisdom of Committees—✦Neil R Ericsson, Federal Reserve Board; David F Hendry, University of Oxford; S. Yanki Kalfa, SAIS; Jaime Marquez, SAIS

11:20 a.m. THE SIGNIFICANCE of FOREIGN DIRECT INVESTMENT INFLOW on ECONOMIC GROWTH in the KINGDOM SAUDI ARABIA—✦Ashraf Ahmed, Morgan State University-Institute for Urban Research; Basim Adnan Matyuri, Morgan State University

11:35 a.m. Moral Hazard Effects of Bank Resolution Policies: Inferences from a Bayesian Nonparametric Study—✦Padma Sharma, UC Irvine

11:50 a.m. Income Inequality Grew Faster from 1970-2016 Than Reflected by the Standard Measures—✦Joseph Gastwirth, George Washington University

12:05 p.m. Misclassification in Binary Choice Models with Sample Selection—✦Maria Felice Arezzo, Sapienza University of Rome; Giuseppina Guagnano, Sapienza University of Rome

170 CC-West 116

Theory and Methods for High-Dimensional Data—Contributed

IMS

Chair(s): Max G'Sell, Carnegie Mellon University

10:35 a.m. Modern Maximum Likelihood Theory for High-Dimensional Logistic Regression—✦Pragya Sur, Stanford University; Emmanuel Candes, Stanford University; Yuxin Chen, Princeton University

10:50 a.m. Bootstrapping Maxima of High-Dimensional Random Vectors with Variance Decay—✦Miles Lopes, University of California, Davis; Hans Mueller, UC Davis; Zhenhua Lin, University of Toronto

11:05 a.m. Supervised Clustering via an Implicit Network for High-Dimensional Data—✦Brandon Park, ; Anand N Vidyashankar, George Mason University; Tucker S McElroy, U.S. Census Bureau

11:20 a.m. Asymptotic Independent U-Statistics in High-Dimensional Adaptive Testing—✦Yinqiu He, University of Michigan; Gongjun Xu, University of Michigan; Chong Wu, University of Minnesota; Wei Pan, University of Minnesota

11:35 a.m. Overlap-Motivated Methods for Causal Inference in High Dimensions—✦Alexander D'Amour, University of California, Berkeley

11:50 a.m. Improved Shrinkage Prediction Under a Spiked Covariance Structure—✦Trambak Banerjee, ; Gourab Mukherjee, University of Southern California; Debashis Paul, UC Davis

12:05 p.m. A Concentration Inequality for Large Autocovariance Matrices—✦Yicheng Li, University of Washington; Fang Han, University of Washington

171 CC-West 117

● New Nonparametric Methods for Correlated Data—Contributed

Section on Nonparametric Statistics

Chair(s): Jingshen Wang, University of Michigan

10:35 a.m. Sparse Single Index Models for Multivariate Responses—✦Yuan Feng, North Carolina State University; Luo Xiao, North Carolina State University; Eric Chi, North Carolina State University

10:50 a.m. Gradient-Based Approach to Sufficient Dimension Reduction for Functional and Longitudinal Data—✦Ming-Yueh Huang, Academia Sinica; Kwun Chuen Gary Chan, University of Washington

11:05 a.m. Spatial Clustering Using Spatio-Temporal Network Data—✦Ashwini Venkatasubramaniam, University of Glasgow; Ludger Evers, University of Glasgow; Konstantinos Ampountolas, University of Glasgow

11:20 a.m. Generalized Additive Models for Spatial Data Distributed on Complicated Domains—✦Shan Yu, Iowa State University; Lily Wang, Iowa State University

11:35 a.m. Ultra-High-Dimensional Single-Index Models for Longitudinal Data—✦Brittany Green, University of Cincinnati; Yan Yu, University of Cincinnati; Dr. LIAN Heng, City University of Hong Kong

11:50 a.m. Smoothing Spline ANOVA Models for Nonparametric Covariance Estimation for Longitudinal Data—✦Tayler Blake, Information Control Company; Yoonkyung Lee, Ohio State University

12:05 p.m. Spatially Varying Coefficient Autoregressive Models—✦Jingru Mu, Iowa State University; Guannan Wang, College of William & Mary; Lily Wang, Iowa State University

MONDAY

172 CC-East 16

Risk Prediction and Analysis—Contributed

Section on Risk Analysis, Section on Physical and Engineering Sciences

Chair(s): Abu Minhajuddin,

10:35 a.m. Beyond Probabilistic Risk Assessment: Deterrence, Dynamic Threat, and Countermeasure Allocation in Transportation Hubs—✦Craig Bakker, Pacific Northwest National Laboratory; Robert T Brigantic, Pacific Northwest National Laboratory; Kellie J MacPhee, Pacific Northwest National Laboratory; Nicholas J Betzsold, Pacific Northwest National Laboratory; Daniel P McCabe, Pacific Northwest National Laboratory; Casey J Perkins, Pacific Northwest National Laboratory

10:50 a.m. Motif Based Robustness and Reliability Analysis of Networks—✦Asim Dey, University of Texas at Dallas; Yulia Gel, University of Texas at Dallas; H. Vincent Poor, Princeton University

11:05 a.m. Forecasting of Grape Powdery Mildew Disease Risk in Vineyards Using a Bayesian Learning Network Model—✦Nathaniel Newlands, Agriculture and Agri-Food Canada (Science and Technology Branch); Weixun Lu, Agriculture and Agri-Food Canada (Science and

Technology Branch); Odile Carisse, Agriculture and Agri-Food Canada (Science and Technology Branch); David E. Atkinson, University of Victoria

11:20 a.m. **Model-Based Clustering of Nonparametric Weighted Networks with Application to Water Pollution Analysis**—✦Amal Agarwal, Pennsylvania State University; Lingzhou Xue, Penn State University and National Institute of Statistical Sciences

11:35 a.m. **Infer the in Vivo Point of Departure with ToxCast in Vitro Assay Data Using a Robust Learning Approach**—✦Dong Wang, FDA National Center for Toxicological Research (NCTR)

11:50 a.m. **Combining Breast Cancer Risk Prediction Models**—✦Zoe Guan, ; Danielle Braun, Harvard T. H. Chan School of Public Health; Lorenzo Trippa, Harvard; Hajime Uno, Dana Farber Cancer Institute; Kevin S. Hughes, Massachusetts General Hospital; Giovanni Parmigiani , Harvard T.H. Chan School of Public Health / Dana-Farber Cancer Institute

12:05 p.m. **A Regression Model of Cumulative Incidence for Competing Risks Data with Time-Dependent Exposures**—✦Xingyuan Li, University of Pittsburgh; Joyce Chung-Chou H Chang, University of Pittsburgh

MONDAY

173 CC-West 121

● Recent Advances on Neuroimaging Analysis—Contributed

Section on Statistics in Imaging, SSC

Chair(s): Shuo Chen, University of Maryland, School of Medicine

10:35 a.m. **Statistical Inference for Neuroimaging Genetics**—✦Long Feng, Yale University; Xuan Bi, Yale University; Heping Zhang, Yale University School of Public Health

10:50 a.m. **Dependence Among Spectral-Based Measures Through Copulas: Theoretical Framework and Research on Change-Points**—✦Charles Fontaine, King Abdullah University of Science and Technology; Hernando Ombao, King Abdullah University of Science and Technology; Yongxin Zhu, King Abdullah University of Science and Technology

11:05 a.m. **Matrix Decomposition for Modeling Multiple Sclerosis Lesion Development Processes**—✦Menghan Hu, Brown University; Ani Eloyan, Brown University; Russell T. Shinohara, University of Pennsylvania Perelman School of Medicine; Ciprian Crainiceanu, Johns Hopkins University

11:20 a.m. **Signal Detection in Brain fMRI Using Global Bayes Factor for Rotation-Space Random Field**—✦Mozhdeh Forghani, University of Northern Colorado; Khalil Shafie, University of Northern Colorado

11:35 a.m. **Hierarchical Mixture Modeling for Multiple Testing and Effect Size Estimation in Voxel-Level Inference of Neuroimaging Data**—✦Ryo Emoto, Nagoya University Graduate School of Medicine; Atsushi Kawaguchi, Saga University; Hisako Yoshida, Saga University; Shigeyuki Matsui, Nagoya University

11:50 a.m. **Intensity Normalization of MRI Images Across Subjects for the Analysis of Large Scale Studies Applicable to Patients with GBM and MS**—✦Abdhi Amitabha Sarkar, University of Pennsylvania; Russell T Shinohara, University of Pennsylvania

12:05 p.m. **Deep Feature Selection and Causal Inference for Alzheimer's Disease**—✦Yuanyuan Liu, The University of Texas Health Science Center at Houston; Qiyang Ge, Fudan University; Nan Lin, The University of Texas Health Science Center at Houston; Wenjia Peng, Bengbu Medical College; Rong Jiao, The University of Texas Health Science Center at Houston; Xuesen Wu, Bengbu Medical College; Momiao Xiong, The University of Texas Health Science Center at Houston

174 CC-West 210

Biomarkers and Endpoint Validation—Contributed

Biopharmaceutical Section

Chair(s): Veronica Powell, QST Consultations

10:35 a.m. **Leveraging Omics Biomarker in Early Clinical Trials - Concept, Utility and Impact on Decision Making**—✦Weidong Zhang, Pfizer Inc.

10:50 a.m. **Inference on Treatment Effect Modification by Marker Response in a Baseline Surrogate Measure Three-Phase Sampling Design**—✦Michal Juraska, Fred Hutchinson Cancer Research Center; Ying Huang, Fred Hutchinson Cancer Research Center; Peter Gilbert, Fred Hutchinson Cancer Research Center

11:05 a.m. **Comparison of Methods to Generate Reference Limits**—✦Bipasa Biswas, CDRH, FDA; Nairita Ghosal, University of Illinois at Chicago

11:20 a.m. **An Analysis of MIMIC Data for Potential Surrogate Markers for Vaccine Development**—Robert Small, Sanofi Pasteur; ✦Pauline Jurvilliers, Sanofi Pasteur

11:35 a.m. **Whole Slide Image as a Pan-Cancer Predictive Biomarker**—✦Shubing Wang, Merck; John Kang, Merck; Vladimir Svetnik, Merck

11:50 a.m. **Statistics Used in Assay Validation**—✦Kenneth Liu,

12:05 p.m. **Longitudinal Models for Kidney Function Decline**—✦Jing Zhang, Moores UCSD Cancer Center; Loki Natarajan, UCSD; Kumar Sharma, Division of Nephrology,University of Texas Health San Antonio; Tina Costacou, University of Pittsburgh; Janet Snell-Bergeon , University of Colorado Anschutz Medical Campus, School of Medicine; Rachel Miller, University of Pittsburgh; Trevor Orchard, University of Pittsburgh

175 CC-West 223

Bayesian Theory, Foundations, and Nonparametrics—Contributed

Section on Bayesian Statistical Science

Chair(s): Alexia Iasonos, Memorial Sloan Kettering Cancer Center

10:35 a.m. A Weighted Dirichlet Process Mixture Modeling for Functional Clustering—✦Wenyu Gao, Virginia Tech; Inyoung Kim, Virginia Tech

10:50 a.m. Posterior Convergence and Coverage Aspects of Gaussian Process Approximations—✦Biraj Subhra Guha, Texas A & M University; Debdeep Pati, Texas A&M University

11:05 a.m. Semiparametric Bayes Model for Multidimensional Instrumental Variables—✦Ryo Kato, Keio University; Takahiro Hoshino, Keio University

11:20 a.m. Geometric Ergodicity of Polya-Gamma Gibbs Sampler for Bayesian Logistic Regression with a Flat Prior—✦Xin Wang, Iowa State University; Vivekananda Roy, Iowa State University

11:35 a.m. Pseudo-Likelihood Based Consistent Approach for High-Dimensional Bayesian VAR Models—✦Satyajit Ghosh, University of Florida; Kshitij Khare, University of Florida; George Michailidis, University of Florida

11:50 p.m. Bayesian Estimation Under Informative Sampling with Unattenuated Dependence—✦Terrance Savitsky, Bureau of Labor Statistics; Matthew Williams, SAMHSA/CBHSQ

176 CC-West 112

Modeling—Contributed

Section on Statistical Computing

Chair(s): Juergen Symanzik, Utah State University

10:35 a.m. Bayesian Emulation and Calibration of an Individual-Based Model Simulation of Microbial Communities—✦Oluwole Oyebamiji, Newcastle University; Darren James Wilkinson, Newcastle University

10:50 a.m. The Posterior Service Time in an M/G/1 Queue with a Workload Barrier and Extreme Prior Service Times—✦Percy Brill, University of Windsor; Mei Ling Huang, Brock University

11:05 a.m. Topic Models for Medical Prescription Fraud and Abuse Detection—✦Tahir Ekin, Texas State University; Babak Zafari, Babson College

11:20 a.m. Detection of Genetic Trends Related to Ecoclines—✦Blair Sterba-Boatwright, Texas A&M University-Corpus Christi; Christopher Bird, Texas A&M University-Corpus Christi

11:35 a.m. Dealing with Methodological Issues in the Functional Data Analysis of Actigraphy Data—✦Stephen W. Looney, Augusta University; William Vaughn McCall, Augusta University; Jordan S. Lundeen, BlueChoice HealthPlan of South Carolina

11:50 a.m. On Nonparametric Quantile Regression—Mei Ling Huang, Brock University; ✦Jenny Tieu, Brock University

12:05 p.m. Mean-Parametrized Conway-Maxwell-Poisson Regression Models for Dispersed Counts—✦Ho Ting Fung, Macquarie University; Alan Huang, University of Queensland; Aya Alwan, Macquarie University; Justin Wishart, Macquarie University

177 CC-West 111

Section on Statistical Learning and Data Science CPapers 2—Contributed

Section on Statistical Learning and Data Science

Chair(s): Julia Wrobel, Columbia University

10:35 a.m. Multilinear Low-Rank Vector Autoregressive Modeling via Tensor Decomposition—✦Di Wang, University of Hong Kong; Guodong Li, University of Hong Kong; Dr. LIAN Heng, City University of Hong Kong

10:50 a.m. Coordinate-Independent Sparse Estimation in Semiparametric Models—✦Haileab Hilafu, University of Tennessee; Sandra Safo, University of Minnesota

11:05 a.m. WPSVM for Spatial Point Processes Directed by Gaussian Random Fields—✦Subha Datta, New Jersey Institute of Technology

11:20 a.m. Capturing Enhanced Information with Higher-Order Tensorian Statistics and Predicting Mortality from Accelerometry-Measured Physical Activity—✦Junrui Di, Johns Hopkins Bloomberg School of Public Health; Vadim Zipunnikov, Johns Hopkins Bloomberg School of Public Health

11:35 a.m. Semi-Orthogonal Matrix Factorization—✦Yutong Li, University of Illinois at Urbana-Champaign; Ruoqing Zhu, University of Illinois Urbana-Champaign; Annie Qu, University of Illinois at Urbana-Champaign

11:50 a.m. Sufficient Dimension Reduction Using Deep Neural Networks—✦Yixi Xu, Purdue University; Xin Zhang, Florida State University; Xiao Wang , Purdue University

12:05 p.m. Correlation Tensor Decomposition and Its Application in Spatial Imaging Data—✦Yujia Deng, UIUC; Xiwei Tang, University of Virginia; Annie Qu, University of Illinois at Urbana-Champaign

178 CC-West 221

Statistical Methods for Analysis of Heterogeneous Tissue Samples in Bulk and Single-Cell Sequencing Data—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Huijing Jiang, IBM Research

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

10:35 a.m. A Bayesian Approach to Analyzing Differential Gene Expression in Heterogeneous Tissue Samples—✦Megan Stefanski, University of Missouri - Kansas City; David Spade, University of Missouri - Kansas City

10:50 a.m. Single-Cell RNA Sequencing: Dropout Imputation and Normalization with Spike-In Genes—✦Nicholas Lytal, University of Arizona; Di Ran, University of Arizona; Lingling An, University of Arizona

11:05 a.m. RNDClone: Tumor Subclone Reconstruction Based on Integrating RNA and DNA Sequence Data—✦Tianjian Zhou, NorthShore University HealthSystem; Subhajit Sengupta, NorthShore University HealthSystem; Yuan Ji, NorthShore Univ. HealthSystem / The University of Chicago

11:20 a.m. Single-Cell Gene Set Analysis with Applications in Tumor Heterogeneity—✦Lingling An, University of Arizona; Di Ran, University of Arizona; Nicholas Lytal, University of Arizona

11:35 a.m. Identifying Biomarkers in Heterogeneous Samples Without Known Reference Cell Type Profiles—✦Kelly Mosesso, Harvard University ; Martin Aryee, Harvard University

11:50 a.m. Fast and Robust Deconvolution of Tumor Infiltrating Lymphocyte from Expression Profiles Using Least Trimmed Squares—✦Yuning Hao, Michigan State University; Yuying Xie, Michigan State University; Ming Yan, Michigan State University; Yu Lei, University of Michigan

12:05 p.m. Estimating Tumor Fraction in Circulating Cell-Free DNA Using Shallow Whole Genome Sequencing—✦Venkatraman Seshan, MSKCC; Nicholas Socci, MSKCC; Dana Tsui, MSKCC; Julie Yang, MSKCC

MONDAY

179 CC-West 222

Emerging Methods for Complex Biomedical Data—Contributed

Section on Statistics in Epidemiology

Chair(s): Wenzhu Mowrey, Albert Einstein College of Medicine

10:35 a.m. ESTIMATING TREATMENT IMPORTANCE in MULTIDRUG-RESISTANT TUBERCULOSIS USING TARGETED LEARNING: AN OBSERVATIONAL INDIVIDUAL PATIENT DATA NETWORK META-ANALYSIS—✦Guanbo Wang, McGill University; Mireille Schnitzer, University of Montreal; Andrea Benedetti, Respiratory Epidemiology and Clinical Research Unit, McGill University Health Centre

10:50 a.m. Design and Analysis Considerations for Studies Involving Pooled Biomarker Data—✦Abigail Sloan, Harvard T.H. Chan School of Public Health; Molin Wang, Harvard T.H. Chan School of Public Health; Mitchell H. Gail, Division of Cancer Epidemiology and Genetics, NCI, NIH

11:05 a.m. Improved Doubly Robust Estimation in Learning Individualized Treatment Rules—✦Yinghao Pan, Fred Hutchinson Cancer Research Center; Yingqi Zhao, Fred Hutchinson Cancer Research Center

11:20 a.m. Statistical Methods for Pooling Categorical Biomarkers from Multiple Studies—✦Xiao Wu, Harvard University; Molin Wang, Harvard T.H. Chan School of Public Health

11:35 a.m. Developing Biomarker Combinations in Multicenter Studies via Direct Maximization and Penalization—✦Allison Meisner, Johns Hopkins University; Kathleen F. Kerr, University of Washington; Chirag Parikh, Yale University

11:50 a.m. Identifying Disease Progression Dynamics Using Electronic Medical Records—✦Xiaochen Wang, ; Hongyu Zhao, Yale

12:05 p.m. Bessel Functions and the Ordering of Changes in Biomarkers, with Application to the Hypothesized Biomarker Model in Preclinical Alzheimer Disease—✦Chengjie Xiong, Washington University in St Louis; Jingqin Luo, Washington University; John Morris, Washington University

Contributed Poster Presentations 10:30 a.m.—12:20 p.m.

180 CC- West Hall B

Contributed Poster Presentations: Section on Teaching of Statistics in the Health Sciences—Contributed

Section on Teaching of Statistics in the Health Sciences

Chair(s): Paul McNicholas, McMaster University

Section on Teaching of Statistics in the Health Sciences

1 **Improving Health Outcomes on the Last Mile of a Learning Healthcare System - the Importance of Leading with Statistics**—✦Daniel Byrne, Vanderbilt University; Henry Domenico, Vanderbilt; Li Wang, Vanderbilt

2 **Is Randomization ". a Fetish of a Piece of Nonsense,.." ?**—✦Donald Taves,

3 **Using an Apprenticeship Model to Train Future Teachers of Statistics**—✦Laura J Le, University of Minnesota; Ann M Brearley, University of Minnesota

181 CC- West Hall B

Contributed Poster Presentations: Section on Statistical Education—Contributed

Section on Statistical Education

Chair(s): Paul McNicholas, McMaster University

Section on Statistical Education

4 **Statistical Problem-Solving Cycles While Solving Simulation Tasks During Guided Interviews**—✦Jonathan M Brown, University of Minnesota - Twin Cities; Robert C delMas, University of Minnesota - Twin Cities; Andrew S Zieffler, University of Minnesota - Twin Cities

5 **The Difference Two Data Points Can Make**—✦Kirk Anderson, Grand Valley State University; Mary Richardson, Grand Valley State University

6 **Engaging Students with Technology**—✦Jeffrey Woo, University of Virginia

7 **Creating Custom Take Home Exams for Statistics Courses with R Markdown**—✦Michael Rutter, Penn State Erie, The Behrend College

8 **Tools, Resources and Skills for Statistics Distance Learning/ Blended Learning**—✦Xiaofang Shi, University of Kentucky

9 **Classroom Demonstration: Deep Learning for Classification and Prediction, Introduction to GPU Computing**—✦Eric Suess, CSU East Bay

182 CC- West Hall B

Contributed Poster Presentations: ASA LGBT Concerns Committee—Contributed

ASA LGBT Concerns Committee

Chair(s): Paul McNicholas, McMaster University

ASA LGBT Concerns Committee

10 **Does Sexual Orientation and Gender Identity (SOGI) Question-Wording Influence Responses?: Evidence from an Experimental Test in a Non-Traditional Sample**—✦Deirdre Middleton, --None--; Matt Jans, ICF; Naomi Freedner, ICF; Lee Harding, ICF; Ronaldo Iachan, ICF; Scott Worthge, MFour; James Dayton, ICF

183 CC- West Hall B

Contributed Poster Presentations: IMS—Contributed

IMS

Chair(s): Paul McNicholas, McMaster University

IMS

11 **First Order Asymptotic Variance of a Leader Election Algorithm**—✦Simon Langowski, Purdue University; Mark Daniel Ward, Purdue University

12 **Asymptotic Properties of Adaptive Group Lasso in High-Dimensional Generalized Additive Model with a Diverging Number of Parameters and Consistent Tuning Parameter Selection**—✦Kaixu Yang, ; Jun Liu, Michigan State University

13 **Honest Confidence Sets for High-Dimensional Linear Regression by Projection and Shrinkage**—✦Kun Zhou, University of California, Los Angeles; Qing Zhou, UCLA

184 CC- West Hall B

Contributed Poster Presentations: International Chinese Statistical Association—Contributed

International Chinese Statistical Association

Chair(s): Paul McNicholas, McMaster University

International Chinese Statistical Association

14 **A Noval Method to Estimate Human Judgment on Words Similarities**—✦Guan I Wu, UCLA; Ker-Chau Li, Institute of Statistical Science, Academia Sinica

15 **A Likelihood Ratio Test for the Lorenz Order**—✦Philip E. Cheng, Academia Sinica; Chen-Da Chang, Academia Sinica; Arthur C. Tsai, Academia Sinica; Michelle Liou, Academia Sinica

16 **Nonparametric Testing for Multiple Survival Functions with Non-Inferiority Margins**—✦Hsin-wen Chang, Academia Sinica; Ian W. McKeague, Columbia University

17 **Add a Patient Selected Treatment Arm in a Randomized Trial**—✦Xueliang Pan, ; Lai Wei, The Ohio State University; Jill Heathcock, The Ohio State University

185 CC- West Hall B

Contributed Poster Presentations: International Statistical Institute—Contributed

International Statistical Institute

Chair(s): Paul McNicholas, McMaster University

International Statistical Institute

18 **A JOINT MODEL of LONGITUDINAL DATA and INFORMATIVE TIME with TIME-DEPENDENT COVARIATE**—✦Mohammad Alomair,

19 **A-Optimal Subsampling for Big Data Generalized Estimating Equations**—✦Thomas Cheung, Purdue University - Indianapolis

186 CC- West Hall B

CANCELLED: Contributed Poster Presentations: Isolated Statisticians—Contributed

Isolated Statisticians

Chair(s): Paul McNicholas, McMaster University

187 CC- West Hall B

Contributed Poster Presentations: Korean International Statistical Society—Contributed

Korean International Statistical Society

Chair(s): Paul McNicholas, McMaster University

Korean International Statistical Society

20 **Control of Two-Dimensional False Discovery Rate by Combining Two Univariate Multiple Testing Results with Application to**

Mass Spectral Data—✦Jaesik Jeong, Johan Lim, Seoul National University; Yongrae Kim, Seoul National University; Jong Soo Lee, University of Massachusetts

21 **How to Identify Fake Images?: Multiscale Methods vs. Sherlock Holmes**—✦Minsu Park, Yonsei University College of Medicine; Hee-Seok Oh, Seoul National University; Donghoh Kim, Sejong University; Minjeong Park, Statistics Korea; Jinae Lee, Yonsei University College of Medicine

22 **Total Signal Index: Measure of Noise Accumulation in Big Data**—✦Miriam Elman, Oregon Health & Science Univ; Jessica Minnier, Oregon Health & Science University; Xiaohui Chang, Oregon State University; Dongseok Choi, Oregon Health & Science University

23 **Quantile Periodogram Under Long-Memory Process**—✦Yaeji Lim

24 **Self Consistent Estimator for Interval Valued Data**—✦Hye Jeong Choi, Seoul National University; Johan Lim, Seoul National University; Xinlei (Sherry) Wang, Southern Methodist University; Minjung Kwak, Yeungnam University

25 **Bayesian Temporal Density Estimation with Autoregressive Species Sampling Models**—✦Seongil Jo, Chonbuk National Univ; Youngin Jo, Kakao corporation; Jaeyong Lee, Seoul National University; Yung-Seop Lee, Dongguk University

26 **Estimation of the Joint Multiply Progressive Type II Censored Data for the Exponential Distribution Model**—✦Kyeongjun Lee, Daegu University; Sanggyeong Yoon, Pusan National University; Yunhwan Noh, Pusan National University; Youngseuk Cho, Pusan National University

27 **Random Dual Rotation: Generalized Permutation Test for High Dimension, Low Sample Size Data**—✦Hee Cheol Chung, University of Georgia; Jeongyoun Ahn, University of Georgia

MONDAY

188 CC- West Hall B

Contributed Poster Presentations: Section on Nonparametric Statistics—Contributed

Section on Nonparametric Statistics

Chair(s): Paul McNicholas, McMaster University

Section on Nonparametric Statistics

28 **Four-Way Interaction Effects on the Major Depressive Disorder Based on Multifactor Dimensionality Reduction Method**—✦Jung Yeon Lee, NYU School of Medicine; Wonkuk Kim, Chung-Ang University; Judith S Brook, NYU School of Medicine

29 **Randomization Tests in Randomized Clinical Trials: Beyond Population**—Yanying Wang, George Mason University; ✦Diane Uschner, RWTH Aachen University; William Fisher Rosenberger, George Mason University

30 **Nonparametric Group Sequential Methods for Recurrent and Terminal Events from Multiple Follow-Up Windows**—✦Meng Xia, University of Michigan; Susan Murray, University of Michigan; Nabihah Tayob, The University of Texas MD Anderson Cancer Center

31 **A Nonparametric Shift-Based Slope Estimator**—✦William Tressel

32 **Joint Model of Longitudinal Ordinal Outcome with Competing Risks Survival Analysis**—✦Xiao Fang

33 **Simultaneous Confidence Intervals for Scale Using Permutation Tests**—✦Scott Richter, University of North Carolina At Greensboro; Melinda McCann, Oklahoma State University

34 **Multivariate Change Point Detection**—✦Michael Messer, Institute of Mathematics, Goethe University, Frankfurt, Germany; Gaby Schneider, Institute of Mathematics, Goethe University, Frankfurt, Germany

35 **MOVE: Adaptive Classification on Partial Linear Models**—✦Chitrak Banerjee, Michigan State University

189 CC- West Hall B

Contributed Poster Presentations: Section on Physical and Engineering Sciences—Contributed

Section on Physical and Engineering Sciences

Chair(s): Paul McNicholas, McMaster University

Section on Physical and Engineering Sciences

36 **Management of Oil/Gas Pipelines Using Statistical Process Control**—✦William Harper, Otterbein University; David J Stucki, Otterbein University; Tony Alfano, DNV GL; Thomas Yahner, DNV GL; Jeffrey Kobs, Rose Rock Midstream; Jim Ponder, Loop LLC (Louisiana Offshore Oil Port)

37 **The Panic Contagion Probability During an Evacuation Process**—✦Guillermo Frank, Universidad TecnolÛgica Nacional; Fernando Cornes, Departamento de FÌsica - FCEN - UBA; Claudio Dorso, Instituto de FÌsica de Buenos Aires

38 **The Panic Contagion Probability During an Evacuation Process**—Guillermo Frank, Universidad TecnolÛgica Nacional; Fernando Cornes, Departamento de FÌsica - FCEN - UBA; Claudio Dorso, Instituto de FÌsica de Buenos Aires

39 **Reliability Analysis of Lab Instruments Based on Statistical Quality Control Data**—✦Min Chen, ExxonMobil Biomedical Sciences, Inc.; Eric Shu Shi, ExxonMobil Biomedical Sciences, Inc.; Chonghaw Kwang, ExxonMobil Asia Pacific Pte. Ltd

40 **Uncertainty Quantification for Fission Product Yield Curves**—✦Jason Bernstein, Lawrence Livermore National Laboratory; Nicolas Schunck, Lawrence Livermore National Laboratory

41 **Forecasting Artificial Earth Satellite Populations**—✦James P. Howard, II, Johns Hopkins University Applied Physics Laboratory

42 **HMC on Symmetric Spaces**—✦Alessandro Barp, Imperial College London; Anthony Kennedy, The University of Edinburgh; Mark Girolami, Imperial College London

43 **Multi-Scale Uncertainty Quantification in the Physical Sciences and Engineering for Complex Models**—✦K. Sham Bhat, Los Alamos National Laboratory

44 **Machine Learning and Censored Data Techniques for Analyzing Beryllium Levels in New Mexico**—✦Alicia Dominguez, Los Alamos National Laboratory

190 CC- West Hall B

Contributed Poster Presentations: Section on Risk Analysis—Contributed

Section on Risk Analysis

Chair(s): Paul McNicholas, McMaster University

Section on Risk Analysis

45 **Parametric Likelihood Inference for Interval Censored and Left Truncated Competing Risks Data**—✦Jung In Kim, NIEHS; Jason P Fine, University of North Carolina at Chapel Hill; Margaret Gourlay, UNC-CH; Byeongyeob Choi, University of Texas Health Science Center at San Antonio

46 **Ethereum: Bitcoin 2.0 - Taking the Road Less Travelled**—✦Yuanyuan Zhang, University of Manchester

47 **High Frequency Momentum Trading with Cryptocurrencies**—✦Stephen Chan, American University of Sharjah

48 **Full-Range Tail Dependence Copulas with Applications in Insurance**—✦Rafael Lovas, Purdue University; Tom Leinart, Purdue University; Jianxi Su, Purdue University

49 **Assessing Risk Score Calculation in the Presence of Uncollected Risk Factors**—✦Alice Toll, Vanderbilt University; Dandan Liu, Vanderbilt University Medical Center

191 CC- West Hall B

Contributed Poster Presentations: Section on Statistical Graphics—Contributed

Section on Statistical Graphics

Chair(s): Paul McNicholas, McMaster University

Section on Statistical Graphics

50 **Graphing Effect Sizes or Regression Coefficients on a Probability Scale to Enhance Interpretation of Relative Magnitudes**—✦Clark Andersen, UTMB

51 **A Joint Modeling Approach for Directed Acyclic Network Data**—✦Yan Zhou, Merck &Co., Inc

52 **Visualization on the CNS HIV Anti-Retroviral Therapy Effects Research**—✦Kylie Schiermann, University of Nebraska Omaha; Xiaoyue Cheng, University of Nebraska of Omaha; Steven Totusek, University of Nebraska Medical Center; Abigail Heithoff, University of Nebraska Medical Center; Allison Dye, University of Nebraska Medical Center; Howard Fox, University of Nebraska Medical Center; Mahbubul Majumder, University of Nebraska at Omaha

192 CC- West Hall B

Contributed Poster Presentations: Section on Statistics and the Environment—Contributed

Section on Statistics and the Environment

Chair(s): Paul McNicholas, McMaster University

Section on Statistics and the Environment

53 **Different Methods and Comparisons Dealing with Censored Count Data**—✦Xiao Yu, University of Texas Health Science Center at Houson; Lung-Chang Chien, University of Nevada, Las Vegas; Kai Zhang, University of Texas Health Science Center at Houson

54 **Incorporating Temperature-Based Covariates in Dynamic Linear Models for MODIS-Landsat Fusion**—✦Marschall Furman, North Carolina State University; Brian Reich, North Carolina State University; Maggie Johnson, SAMSI; Joshua Gray, North Carolina State University

55 **Inferential Techniques for Persistent Homology**—✦Richard Ross, University of Georgia; Nicole Lazar, University of Georgia; Lynne Seymour, University of Georgia; Thomas Mote, University of Georgia

56 **Center for Global SoundScapes**—✦Sara Lynch, Purdue Univ; Brian Pijanowski, Purdue University Center for Global SoundScapes; Ben Gottesman, Center for Global Soundscapes

57 **Improving Spatial Occupancy Model Parameter Estimation Using Citizen Science Data**—✦David Huberman, North Carolina State University; Brian Reich, North Carolina State University; Krishna Pacifici, North Carolina State University

58 **Bayesian Bivariate Extreme Value Analysis with Application in Environmental Statistics**—✦Yuan Tian, North Carolina State University; Brian Reich, North Carolina State University

59 **Determining Whether Mixtures of Environmental Chemicals Are Sufficiently Similar via Dimension-Reduction and Clustering**—✦David Umbach, National Institute of Environmental Health Sciences; Caroll A. Co, Social & Scientific Systems, Inc.; Gregg E Dinse, Social & Scientific Systems, Inc.; Grace E Kissling, National Institute of Environmental Health Sciences; Keith R. Shockley, National Institute of Environmental Health Sciences; Marjo V. Smith, Social & Scientific Systems, Inc.

60 **Spatiotemporal Data Fusion of Remote Sensing Data Using Space-Time Dynamic Linear Models**—✦Maggie Johnson, SAMSI; Brian Reich, North Carolina State University; Marschall Furman, North Carolina State University; Joshua Gray, North Carolina State University

61 **Statistical Methods for Evaluating the Correlation Between Timeline Follow-Back Data and Daily Process Data: Results from a Randomized Controlled Trial**—✦Wanjun Liu, Penn State University

62 **Identification of Contiguous Hours' Climatological Wind Modes Utilizing K-Means Clustering Analysis Combined with the V-Fold Cross-Validation Algorithm**—✦Charles Fisk

63 **A Note on Managing Uncertainty About Source Release Height After an Accident**—✦Ali Gargowm, United Arab Emirates Univ / College of Business & Economics

64 **Unearthing Correlations Between Crop Yields and Uncontrollable Factors**—✦Tyler Netherly, Purdue University; Elizabeth Bell, Purdue University; Madison Trout, Purdue University; Professor Dennis Buckmaster, Purdue University

65 **Optimal Sampling Regime for Estimating Population Dynamics**—✦Rebecca Bergee, Edward L Boone, Virginia

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Commonwealth University; Ryad Ghanam, Virginia Commonwealth University

66 **Risk Analysis of Human Health Among Artisanal Small-Scale Gold Mining Area in Indonesia**—✦Koji Kanefuji, Institute of Statistical Mathematics; Koyomi Nakazawa, Fukuoka Institute of Technology; Osamu Nagafuchi, Fukuoka Institute of Technology

67 **Depth-Based Clustering for Multivariate Time Series with Applications in Wind Energy**—✦Laura L. Tupper, Williams College

68 **Multivariate Air Pollutant Exposure Prediction in South Carolina**—✦Raymond Boaz, Medical University of South Carolina; John Pearson, Duke University; Andrew B Lawson, Medical University of South Carolina

193 CC- West Hall B

Contributed Poster Presentations: Section on Statistics in Sports—Contributed

Section on Statistics in Sports

Chair(s): Paul McNicholas, McMaster University

Section on Statistics in Sports

69 **Statistics Behind the Skill: Cluster Analysis and Data Visualization on Disc Golf Data**—✦Elijah S Meyer, Montana State University; Jennifer L Green, Montana State University

70 **Enhanced Prediction of March Mania Using Conference and Historical Information**—✦Guanhong Miao, ; Samuel Wu, University of Florida

71 **Equipment Independent Estimation of Novel Metrics for Ranking Amateur Auto Racing Drivers**—✦Alexandra Peterson, Daniel L. Gillen, University of California, Irvine; Hal Stern, University of California, Irvine

72 **Goalkeeping Fatigue in the NHL**—Michael Davis, Simon Fraser University; ✦Barinder Thind, Simon Fraser University; Matthew Reyers, Simon Fraser University; Brad Smallwood, Simon Fraser University

194 CC- West Hall B

Contributed Poster Presentations: SSC—Contributed

SSC

Chair(s): Paul McNicholas, McMaster University

SSC

73 **Applications of Directional Inference**—✦Andrew McCormack, Nancy Reid, University of Toronto; Sri-Amirthan Theivendran, University of Toronto; Nicola Sartori, University of Padua

195 CC- West Hall B

CANCELLED: Contributed Poster Presentations: Uncertainty Quantification for Complex Systems Interest Group—Contributed

Uncertainty Quantification for Complex Systems Interest Group

Chair(s): Paul McNicholas, McMaster University

196 CC- West Hall B

SPEED: Teaching Statistics: Strategies and Applications—Contributed

Section on Statistical Education

Chair(s): Paul McNicholas, McMaster University

Section on Statistical Education

1 **Introducing R to Non-STEM Undergraduates in a Second Semester Statistics Course**—✦Darlene Olsen, Norwich University

2 **If an Algorithm Is Published in a Journal and No One Understands it, Was it Really Published at All?**—✦Nick Thieme, University of California-Hastings; Joyce Cahoon, North Carolina State University; Daniel Ahmed Alhassan, Missouri University of Science and Technology

3 **The Statistics Workshop: Cultivating Diversity in Statistics**—✦Gretchen Martinet, University of Virginia; Jeffrey J. Holt, University of Virginia

4 **Statistical Programming to Principles of Data Science: Rethinking the Traditional Statistical Programming Curricula**—✦Andrew Hoegh, Montana State University

5 **Shiny Dashboards to Help Students Improve Performance**—✦Robert Carver, Brandeis International Business School

6 **Experiments in Statistics: Do Students Perceive Value?**—✦Sudipta Roy, University of St. Francis; Richard Kloser, University of St. Francis

7 **How Students Make Sense of Data on an E-Learning Platform**—✦Philipp Burckhardt, Carnegie Mellon University; Christopher Genovese, Carnegie Mellon University; Rebecca Nugent, Carnegie Mellon University

8 **Efficacy of 'the Islands'-Based Projects Compared to Student-Collected Data Projects in Introductory Statistics Courses**—✦Ryne VanKrevelen, Elon University; Kirsten Doehler, Elon University; Andrea Metts, Elon University; Lisa Rosenberg, Elon University; Laura Taylor, Elon University

9 **The Impact of Academically Homogeneous Classrooms in Undergraduate Statistics Education**—✦James Pleuss, United States Military Academy

10 **A Didactic Game to Understand Multicollinearity and Its Consequences in a Linear Regression Model**—✦Luis Quiros Gomez, School of Statistics, University of Costa Rica; Marìa José Solìs QuirÛs, School of Statistics, University of Costa Rica; Noelia Rojas RamÌrez, School of Statistics, University of Costa Rica

11 **The Novel Communication Tool: Mathematics Classroom Collaborator (MC2)**—✦Sohee Kang, University of Toronto Scarborough; Marco Pollanen, Trent University; Sotirios Damouras , University of Toronto Scarborough

12 **Predicting Student Performance in Undergraduate Introductory Statistics Courses**—✦Dusty Turner, USMA

13 **Survey of Prediction Methods to Assess Student Performance**—Joyce Cahoon, North Carolina State University— ✦Daniel Stanhope, Learn Platform

14 **Type S Error Control in Hypothesis Testing**—✦Andrew Neath, SIU Edwardsville

15 **Affordable and Open Educational Resources (OER) in Statistical Education**—✦Suhwon Lee, Univ of Missouri

16 **Introducing Forecast Intervals with a Confidence Game**—✦Robin Lock, St. Lawrence University

17 **Teaching Statistical Consulting at Primarily Undergraduate Institutions**—✦Tracy Morris, University of Central Oklahoma; Cynthia Murray, University of Central Oklahoma ; Tyler Cook, University of Central Oklahoma

18 **Helping All Students Properly Design and Analyze Experiments**—✦Jennifer Broatch, Arizona State University

19 **Recreational Statistics at the Junior High/High School Level**—✦Joy Yang, MIT

20 **Providing Introductory Students a Big Data Experience**—✦Paul Stephenson, Grand Valley State University; Patricia Stephenson, Grand Valley State University; Lori Hahn, Grand Valley State University

197 CC- West Hall B

SPEED: Government and Health Policy—Contributed

Health Policy Statistics Section, Government Statistics Section, Section on Statistical Learning and Data Science, Section on Teaching of Statistics in the Health Sciences, Section for Statistical Programmers and Analysts

Chair(s): Paul McNicholas, McMaster University

Section on Statistical Learning and Data Science

21 **DataSifter: Statistical Obfuscation of Electronic Health Record and Other Sensitive Data Sets**—✦Nina Zhou, University of Michigan; Simeone Marino, Statistics Online Computational Resource, University of Michigan; Lu Wang, University of Michigan; Yiwang Zhou, University of Michigan; Ivo Dinov, Statistics Online Computational Resource, University of Michigan

Health Policy Statistics Section

22 **Deep Learning on Small Data - Experiences in Transfer Learning for Healthcare**—✦Dennis Murphree

Government Statistics Section

23 **Doing More with Less - Eliminating the Long Survey Forms from the Occupational Employment Statistics Survey**—✦Carrie K. Jones, US Bureau of Labor Statistics

Section on Teaching of Statistics in the Health Sciences

24 **Functional Principal Component Analysis for GFR Curves After Kidney Transplant**—✦Jianghu Dong, ; Liangliang Wang, Simon Fraser University; Jagbir Gill, University of BC; Jiguo Cao, Simon Fraser University

Health Policy Statistics Section

25 **Nonparametric Machine Learning with Variable Selection for Synthetic Controls**—✦Christoph Kurz, Helmholtz Zentrum Muenchen; Laura Hatfield, Harvard Medical School; Sherri Rose, Harvard Medical School

Government Statistics Section

26 **Statistically Supporting Health Policy Decision-Making**—✦Frank Yoon, IBM Watson Health

Health Policy Statistics Section

27 **Intravenous Fluid Treatments for Ebola Patients: The Risk and the Reward**—✦Derrick Yam, Brown University; Tao Liu, Brown University; Adam Levine, Brown University; Adam Aluisio, Brown University; Shiromi Peters, International Medical Corps; Suzanne Averill, International Medical Corps; Stephen Kennedy, Ministry of Health, Liberia; Fodey Sahr, Sierra Leone Ministry of Defence; Jillian Peters, Brown University; Daniel Cho, Brown University

28 **Comparison of Methods for Predicting High-Cost Patients Captured Within the Oncology Care Model (OCM): a Simulation Study**—✦Jung-Yi Lin, Icahn School of Medicine at Mount Sinai; Wei Zhang, UALR; Mark Liu, Mount Sinai Health System; Mark Sanderson, Mount Sinai Health System; Luis Isola, Mount Sinai Health System; Madhu Mazumdar, Icahn School of Medicine at Mount Sinai; Liangyuan Hu, Icahn School of Medicine at Mount Sinai

29 **Intervening on the Data to Improve the Performance of Health Plan Payment Methods**—✦Savannah Bergquist, Harvard University; Tim Layton, Harvard Medical School; Tom McGuire, Harvard Medical School; Sherri Rose, Harvard Medical School

30 **Developing and Evaluating Methods for Estimating Race/Ethnicity in an Incomplete Dataset Using Address, Surname and Family Race**—✦Gabriella Christine Silva, Brown University; Roee Gutman, Brown University

Government Statistics Section

31 **Can Post-Stratification Weights Eliminate the Need for Additional Weighting Adjustments?**—✦Chrishelle Lawrence, U.S. Energy Information Administration

Section for Statistical Programmers and Analysts

32 **Open Data Sharing and Its Statistical Limitations**—✦Pooja Iyer, RTI International; Barbara Do, RTI International

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Health Policy Statistics Section

33 **Predictors of Hospitalization During a Medicare Skilled Nursing Facility Stay**—✦Fei Han, The Hilltop Institute; Ian Stockwell, The Hilltop Institute

34 **Comparison of Treatment Policies Using Bayesian Nonparametric G-Formula**—✦Yizhen Xu, Brown University; Tao Liu, Brown University; Rami Kantor, Brown University; Joseph W Hogan, Brown University School of Public Health

35 **Optimal Matching Approaches in Health Policy Evaluations Under Rolling Enrollment**—✦Jonathan Gellar, Mathematica Policy Research; Jiaqi Li, Mathematica Policy Research; Lauren Vollmer, Mathematica Policy Research

36 **Assessing Health Care Interventions via an Interrupted Time Series Model: Study Power and Design Considerations**—✦Maricela Cruz, University of California, Irvine; Miriam Bender, University of California, Irvine; Daniel L. Gillen, University of California, Irvine; Hernando Ombao, King Abdullah University of Science and Technology

37 **Absence of Evidence Is Not Evidence of Absence: a Better Parallel Trends Test**—✦Alyssa Bilinski, Harvard Graduate School of Arts and Sciences; Laura Hatfield, Harvard Medical School

38 **New Applications of Machine Learning to Estimating Large Physician Demand Models**—✦Bryan Sayer, Social & Scientific Systems, Inc.; William Encinosa, Agency for Health Care Quality and Research

39 **On Utilizing Published Prevalence Estimates to Perform Difference-In-Difference Tests: Testing the Impact of Recreational Marijuana Laws**—✦Christine Mauro, Columbia University; Chen Chen, New York State Psychiatric Institute; Silvia Martins, Columbia University; Magda Cerd·, University of California, Davis; Melanie M. Wall, Columbia University

Section on Statistical Learning and Data Science

40 **Community Detection with Dependent Connectivity**—✦Yubai Yuan, University of Illinois at Urbana-Champaign; Annie Qu, University of Illinois at Urbana-Champaign

Contributed Poster Presentations 11:35 a.m.—12:20 p.m.

198 CC- West Hall B

SPEED: Nonparametric Statistics: Estimation, Testing, and Modeling—Contributed

Section on Nonparametric Statistics

Chair(s): Paul McNicholas, McMaster University

Section on Nonparametric Statistics

1 **Quantile Function Modeling Applied to Time Between Healthcare-Associated Infection Events**—✦Jonathan R Edwards, Center for Disease Control & Prevention

2 **Model Class Reliance: Variable Importance Measures for Any Machine Learning Model Class, from the**—✦Aaron Fisher, Harvard University; Cynthia Rudin, Duke University; Francesca Dominici, Harvard T. H. Chan School of Public Health

3 **Random Conditional Histogram Based Density Estimation with Applications in Probabilistic Forecasting**—✦Rui Li, North Carolina State University; Howard D Bondell, University of Melbourne; Brian Reich, North Carolina State University

4 **Tangent Field and Multi-Fractional Brownian Motion with Applications on Stock Indices**—✦Jinqi Shen, University of Michigan; Tailen Hsing, University of Michigan

5 **Consistent Goodness-of-Fit Tests for Gamma Distributions Based on Empirical Hankel Transforms**—✦Elena Hadjicosta, Penn State University; Donald Richards, Penn State University

6 **Convergence Rates of a Partition Based Bayesian Multivariate Density Estimation Method**—✦Linxi Liu, Columbia University; Dangna Li, Stanford University; Wing Hung Wong, Stanford University

7 **A Bootstrap-Based Test for Distributional Symmetry in SO(3)**—✦Ulrike Genschel, Iowa State University; Daniel Nordman, Iowa State University; Stephen Vardeman, Iowa State University; Yalin Rao, Iowa State University

8 **Approximate Inference for Large Non-Gaussian Spatial Data**—✦Daniel Zilber, Texas A&M University; Matthias Katzfuss, Texas A&M University

9 **Quantile-Optimal Treatment Regimes with Censored Data**—✦Yu Zhou, University of Minnesota; Lan Wang, University of Minnesota; Rui Song, North Carolina State University

10 **Multiple Imputation Using Denoising Autoencoders**—✦Lovedeep Gondara

11 **Coverage Probability of Empirical Likelihood for Dependent Data**—✦Guangxing Wang, University of California, Davis; Wolfgang Polonik, University of California, Davis

12 **Semiparametric Regression for Measurement Error Model with Heteroscedastic Error**—✦Mengyan Li, ; Yanyuan Ma, Penn State University; Runze Li, Penn State University

13 **Information Theoretic Estimation of Econometric Functions**—✦Yi Mao, University of California, Riverside; Aman Ullah, University of California, Riverside

14 **Wasserstein Gradients for the Temporal Evolution of Probability Distributions**—✦Yaqing Chen, University of California, Davis; Hans Mueller, UC Davis

15 **Constrained Bayesian Inference Through Posterior Projections**—✦Sayan Patra, Duke University; David B Dunson, Duke University

16 **Nonlinear Dependency and an Application in Brain Functional Connectivity Study**—✦Rui Liu, Louisiana Tech University

17 **A DCp Criterion for Nonparametric First Derivative Estimation**—✦Sisheng Liu, Fred Hutchinson Cancer Research Center; Richard Charnigo, University of Kentucky; Cidambi Srinivasan, University of Kentucky

18 **Permutation Tests for Regression Analysis in Respondent-Driven Sampling Data**—✦Dongah Kim, University of Massachusetts; Krista J. Gile, University of Massachusetts; Pedro Mateu-Gelabert, National Development and Research Institutes, Inc.; Honoria Guarino, National Development and Research Institutes, Inc.

19 **Statistical Methods for the Analysis of Ventilator-Free Days**—✦Charity Morgan

199 CC- West Hall B

SPEED: Data Expo—Contributed

Section on Statistics and the Environment, Section on Statistical Computing

Chair(s): Paul McNicholas, McMaster University

Section on Statistical Computing

21 **Let's Talk About the Weather**—✦Jill Lundell, Utah State University; Brennan Bean, Utah State University; Juergen Symanzik, Utah State University

22 **Modeling and Mapping Weather Forecast Accuracy**—✦Queen Ikhelowa, Darren Keeley, CSUEB

23 **Exploring Population Health with Fluctuations in Weather**—✦Brian Hochrein, IBM Watson Health

24 **Assessing Prediction Error in Traditional Weather Forecasts vs. a Data-Centric Approach**—✦Robert Garrett, Miami University; Ryan Estep, Miami University; Nichole Rook, Miami University; Benjamin William Schweitzer, Miami University; Thomas Fisher, Miami University

25 **Verification, Diagnosis, and Adjustment of Current Temperature Forecasting System in the United States**—✦Han-Yueh Lee, National Tsing Hua University; Hsiao-Ting Lin, National Tsing Hua University

26 **Spatial Correlation in Weather Forecast Error Metrics**—✦Phillip Alexander Jang, Cornell University

27 **Should You Pay Attention to Daily Weather Forecast? An Exploration**—✦Dooti Roy, Boehringer Ingelheim Pharmaceuticals Inc.; Gregory Vaughan, Bentley University; Jianan Hui, Boehringer Ingelheim Pharmaceuticals Inc.; Junxian Geng, Boehringer Ingelheim Pharmaceuticals Inc.

28 **The Impact of Bias and Uncertainty of Weather Forecasts on Storm Events**—✦Mary Frances Dorn, Los Alamos National Laboratory; Kimberly Kaufeld, Los Alamos National Laboratory

29 **Uncertainty Quantification of Weather Forecasts**—✦Yu Wang, University of British Columbia; Gong Zhang, University of British Columbia; Boyi Hu, University of British Columbia; Ho Yin Ho, University of British Columbia

30 **Weather Forecasts: How Reliable Are They?**—✦Xuemao Zhang, East Stroudsburg University

31 **An Analysis on the Accuracy of Weather Forecasts**—✦Benjamin William Schweitzer, Miami University; Nichole Rook, Miami University; Ryan Estep, Miami University; Robert Garrett, Miami University; Thomas Fisher, Miami University

32 **Do I Really Need a Jacket?**—✦Joe Watson, UBC; Qiong Zhang, UBC; Daniel Dinsdale, The University of British Columbia

33 **The Myths About Weather Forecasting**—Ying (Daisy) Yu, Simon Fraser University; Chuyuan (Cherlane) Lin, Simon Fraser University; ✦Yifan Wu, Simon Fraser University

34 **Do I Need to Check the Weather Forecast, or Is Yesterday's Weather a Reasonable Prediction?**—✦Rachel Harter, RTI International; Kayla Nowak, RTI International; Nicole Mack, RTI International

35 **BENCHMARKING the EFFECTIVENESS of CATEGORICAL RESPONSE VARIABLE MODELS and THEIR VISUALIZATIONS on WEATHER DATA**—✦Kristen Bystrom, ; Zhi Yuh Ou Yang, Simon Fraser University; Lei Chen, Simon Fraser University

36 **Analysis of Weather Forecasting Data for Data Expo 2018**—✦Jordan Rodu, University of Virginia

Section on Statistics and the Environment

37 **Exploring Spatiotemporal Patterns in Forecast Data**—✦Erin Howard, Oregon State University; Matthew Higham

Section on Statistical Computing

38 **Distribution of Prediction Errors and Reasons Behind the Large Deviations in Weather Forecast**—✦Zhiyuan Shu, Lingsong Zhang, Purdue University

MONDAY

Special Presentation 2:00 p.m.—3:50 p.m.

211 CC-West Ballroom A

● Late Breaking Session: Addressing Sexual Misconduct in the Statistics Community—Invited

JSM Partner Societies, Caucus for Women in Statistics, Committee on Women in Statistics

Organizer(s): Stephanie Hicks, ASA Committee on Women in Statistics

Chair(s): Keegan Korthauer, Dana-Farber Cancer Institute

2:05 p.m. Addressing Sexual Misconduct in the Statistics Community—✦Leslie McClure, Drexel University; ✦Kristian Lum, Human Rights Data Analysis Group; ✦Kerrie Mengersen, Queensland University of Technology; ✦Lance Waller, Emory University; ✦Dianne Cook, Monash University; ✦Emma Benn, Icahn School of Medicine at Mount Sinai; ✦Brian Millen, Eli Lilly

3:40 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Invited Sessions 2:00 p.m.—3:50 p.m.

212 CC-West 109

■ ● **An Emerging Ecosystem for Data Science/Statistics Education—Invited**

Section on Statistical Education, Section on Statistical Computing, SSC

Organizer(s): Albert Y. Kim, Smith College

Chair(s): Albert Y. Kim, Smith College

2:05 p.m. Version Control: The Gain You Get for Your Pain—✦Jennifer Bryan, RStudio, University of British Columbia

2:25 p.m. Using Data to Drive Curriculum Development—✦Chester Ivan Ismay, DataCamp

2:45 p.m. Authoring and Utilizing Open Source, Reproducible Statistics/Data Science Textbooks—✦Alicia A Johnson, Macalester College

3:05 p.m. Aligning Inference with the Tidyverse: Development of the Infer Package—✦Andrew Paul Bray, Reed College

3:25 p.m. Streamline Your Class with RStudio—✦Garrett Grolemund, RStudio Inc.

3:45 p.m. Floor Discussion

213 CC-East 10

■ ● **Lead with Statistics in Uncertainty Quantification—Invited**

Section on Physical and Engineering Sciences

Organizer(s): Lulu Kang, Illinois Institute of Technology

Chair(s): Lulu Kang, Illinois Institute of Technology

2:05 p.m. Universal Convergence of Kriging—✦C. F. Jeff Wu, Georgia Institute of Technology; Rui Tuo, Chinese Academy of Sciences; Wenjia Wang, Georgia Institute of Technology

2:30 p.m. Screening for Important Factors in Computer Experiments—✦David Steinberg, Tel Aviv University; Natalie Abel, Tel Aviv University

2:55 p.m. Design of Experiments for the Calibration of Computational Models—✦David Woods, University of Southampton; Yiolanda Englezou, University of Southampton; Timothy Waite, University of Manchester

3:20 p.m. Disc: Derek Bingham, Simon Fraser University

3:45 p.m. Floor Discussion

214 CC-West 110

■ ● **Academic Publication Is Dead, Long Live Academic Publication—Invited**

Section on Statistical Computing, Section on Statistical Education

Organizer(s): Jeffrey Leek, Johns Hopkins Bloomberg School of Public Health

Chair(s): Jeffrey Leek, Johns Hopkins Bloomberg School of Public Health

2:05 p.m. The Lean Course: Open and Collaborative Online Course Development—✦Sean Kross, The University of California San Diego

2:35 p.m. Growing a Book in the Open: From Blog Post to O'Reilly Paperback—✦Julia D Silge, Stack Overflow

3:05 p.m. Middle Author Dilemma: How to Recognize Critical Contributions of Multidisciplinary Teams—✦Melissa Gymrek, University of California San Diego

3:35 p.m. Floor Discussion

215 CC-West 224

■ ● **Non- and Semiparametric Methods to Accommodate Dependency and Heterogeneity in Complex Data—Invited**

Section on Nonparametric Statistics, IMS, Lifetime Data Analysis Interest Group, SSC

Organizer(s): Naisyin Wang, U of Michigan

Chair(s): Gongjun Xu, University of Michigan

2:05 p.m. Nonparametric Bayesian Priors for Hidden Markov Random Fields—✦Florence Forbes, INRIA; Hongliang Lu, INRIA; Julyan Arbel, INRIA

2:30 p.m. Nonparametric Modeling of Longitudinal Compositional Data as Trajectories on the Sphere—✦Hans Mueller, UC Davis; Xiongtao G Dai, University of California, Davis

2:55 p.m. Goodness-of-Fit Tests in Proportional Hazards Models with Random Effects—✦Ingrid Van Keilegom, KU Leuven; Wenceslao Gonzalez Manteiga, University of Santiago de Compostela; Maria Dolores Martinez Miranda, University of Granada

3:20 p.m. Disc: Naisyin Wang, U of Michigan

3:45 p.m. Floor Discussion

216 CC-West 206/207

■ ● **Modern Bayesian Computing in Ecology—Invited**

ENAR, Section on Statistics and the Environment

Organizer(s): Mevin Hooten, Colorado State University

Chair(s): Perry Williams, Colorado State University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

2:05 p.m. Beyond the Black Box: Flexible Algorithm Programming for Ecological Models in NIMBLE—✦Christopher Paciorek, University of California, Berkeley; Colin Lewis-Beck, Iowa State University; Perry de Valpine, UC Berkeley; Daniel B. Turek, Williams College; Lauren Ponisio, UC Riverside; Nick Michaud, UC Berkeley

2:25 p.m. Exact Inference in Functional Regression: Estimating Hydrological Controls on Ecosystem Dynamics in an Antarctic Lake—✦Radu Herbei, The Ohio State University; Corey J. Smith, The Ohio State University

2:45 p.m. Hierarchical Computing for Hierarchical Models in Ecology—✦Mevin Hooten, Colorado State University

3:05 p.m. Modeling Your Way Out of Hierarchical Models in Ecology—✦Ephraim Hanks, The Pennsylvania State University

3:25 p.m. Not All Hierarchical Models Are Created Equal: Interpretation, Model Adequacy and Statistical Computation—✦Matthew Schofield, University of Otago; Richard Barker, University of Otago

3:45 p.m. Floor Discussion

217 CC-East 16

■ Studying Psychiatric Disorders Using Statistical and Machine Learning Methods—Invited

Mental Health Statistics Section, ENAR, WNAR, SSC

Organizer(s): Hongyuan Cao, University of Missouri-Columbia

Chair(s): Lei Liu, Washington University in St Louis

2:05 p.m. SAME-Clustering: Single-Cell Aggregated Clustering via Mixture Model Ensemble—Ruth Huh, University of North Carolina at Chapel Hill; Yuchen Yang, University of North Carolina at Chapel Hill; Houston Culpepper, University of North Carolina at Chapel Hill; ✦Yun Li, University of North Carolina at Chapel Hill

2:30 p.m. Statistical Methods for Integrative Analysis of Multi-Omics Data with Applications to Psychiatric Disorders—✦Hongyuan Cao, University of Missouri-Columbia; Jun Chen, Mayo Clinic; Xianyang Zhang, Texas A&M University

2:55 p.m. Statistical Challenges and Opportunities for Analysis of Massive Biobank Data—✦Xihong Lin, Harvard University

3:20 p.m. Analysis of Mental Disorder Omics Data: An Integrative Perspective—✦Shuangge Ma, Yale University

3:45 p.m. Floor Discussion

218 CC-West 213

■ ● Statistical Advances in the Design and Analysis of Sequence-Based Genetic Association Studies—Invited

Section on Statistics in Genomics and Genetics, International Indian Statistical Association, Section on Statistics in Epidemiology, SSC

Organizer(s): Debashree Ray, Johns Hopkins University

Chair(s): Haoyu Zhang, Johns Hopkins University

2:05 p.m. Statistical Issues in the Design and Analysis of Sequencing Studies—✦Danyu Lin, University of North Carolina

2:30 p.m. Analysis of Quantitative Traits in Sequencing Studies with Outcome-Dependent Sampling—✦SAONLI BASU, University of Minnesota

2:55 p.m. Post-Selection Estimation and Testing Following Aggregated Association Tests—Ruth Heller, Tel-Aviv University; Amit Meir, University of Washington; ✦Nilanjan Chatterjee, Johns Hopkins University

3:20 p.m. On the Design of Sequence-Based Case-Control Studies with External Controls—✦Debashree Ray, Johns Hopkins University; Pranav Yajnik, University of Michigan; Michael Lee Boehnke, University of Michigan

3:45 p.m. Floor Discussion

219 CC-West 118

● Seeing the World as a Missing Data Problem: Celebrating 40 Years of Multiple Imputation—Invited

Social Statistics Section, Survey Research Methods Section, Royal Statistical Society, SSC

Organizer(s): Robin Mitra, University of Lancaster

Chair(s): Robin Mitra, University of Lancaster

2:05 p.m. Nonparametric Multiple Imputation for Bridging Between Different Industry Coding Systems—✦J˚rg Drechsler, Institute for Employment Research; Birgit Pech, Amt f¸r Statistik Berlin-Brandenburg

2:30 p.m. Multiple Imputation for Adaptive Survey Design—✦Trivellore Raghunathan, University of Michigan

2:55 p.m. A Robust Multiple Imputation Approach to Causal Inference with Confounding by Indication—✦Roderick J Little, University of Michigan; Tingting Zhou, University of Michigan; Michael Elliott, University of Michigan

3:20 p.m. Disc: Donald Rubin, Harvard University

3:45 p.m. Floor Discussion

MONDAY

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

220 CC-East 17

■ ● What Does it Mean to Work on Health Policy?—Invited

Health Policy Statistics Section, Council of Chapters, Committee on Career Development

Organizer(s): Layla Parast, RAND

Chair(s): Layla Parast, RAND

2:05 p.m. Improving Our Understanding of Dynamic Group-Based Interventions for Treating Depression and Substance Use Disorders—✦Susan M Paddock, RAND Corporation; Bing Han, RAND Corporation; Lane Burgette, RAND Corporation

2:30 p.m. Assessing the Impact of Health Policy Changes in Primary Care—✦Miguel Marino, OHSU-PSU School of Public Health, Biostatistics Group

2:55 p.m. Beyond Exposure-Response Estimation in Air Pollution Epidemiology: Causal Inference for Informing Air Quality Policies—✦Corwin Zigler, Harvard T.H. Chan School of Public Health

3:20 p.m. Disc: Ruth Etzioni, Fred Hutchinson Cancer Research Center

3:45 p.m. Floor Discussion

221 CC-East 19

■ ● Analysis of Big Dynamically Dependent Data—Invited

Business and Economic Statistics Section, International Chinese Statistical Association, Section on Statistics in Marketing

Organizer(s): Ruey S Tsay, University of Chicago, Booth School of Business

Chair(s): Daniel R Kowal, Rice University

2:05 p.m. A Factor Augmented Vector Autoregressive Model Under High-Dimensional Scaling—✦George Michailidis, University of Florida; Jiahe Lin, University of Michigan

2:30 p.m. Statistical Inference for High-Dimensional Time Series—✦Ruey S Tsay, University of Chicago, Booth School of Business

2:55 p.m. Dynamic Shrinkage Processes—✦David Matteson, Cornell University; Daniel R Kowal, Rice University; David Ruppert, Cornell University

3:20 p.m. Spectral Estimation for a Class of High-Dimensional Linear Processes—✦Alexander Aue, University of California, Davis; Debashis Paul, UC Davis; Jamshid Namdari, UC Davis

3:45 p.m. Floor Discussion

222 CC-West 116

■ New Advances in Statistical Methods for Complex Data—Invited

Section on Risk Analysis, Biometrics Section, Section on Statistics in Epidemiology, SSC

Organizer(s): Rajeshwari Sundaram, Eunice Kennedy SHriver National Institute of Child Health and Human Development

Chair(s): Ling Ma, Clemson University

2:05 p.m. Complexity in Simple Regression Models with Binary Disease Outcome—✦Mei-Cheng Wang, Johns Hopkins University

2:30 p.m. Regression Analysis of Mixed Recurrent Event and Panel Count Data—✦(Tony) Jianguo Sun, University of Missouri

2:55 p.m. Independence Conditions and Intermittent Observation in Life History Studies—✦Richard John Cook, University of Waterloo; Jerald Lawless, University of Waterloo

3:20 p.m. Joint Modeling of Length-Biased and Competing Risks Survival Times with View Toward Individualized Prediction: An Application to Spontaneous Labor—✦Rajeshwari Sundaram, Eunice Kennedy SHriver National Institute of Child Health and Human Development; Ling Ma, Clemson University

3:45 p.m. Floor Discussion

223 CC-West 306

Annals of Applied Statistics (AOAS) Lecture—Invited

IMS

Organizer(s): Tilmann Gneiting, Heidelberg Institute for Theoretical Studies

Chair(s): Karen Kafadar, University of Virginia

2:05 p.m. Statistical Paradises and Paradoxes in Big Data (I): Law of Large Populations, Big Data Paradox, and the 2016 US Presidential Election—✦Xiao-Li Meng, Harvard University

2:35 p.m. On the Use of Bootstrap with Variational Inference—✦Elena A Erosheva, University of Washington ; Yen-Chi Chen, University of Washington; Y. Samuel Wang, University of Washington

3:05 p.m. Clustering the Prevalence of Pediatric Chronic Conditions in the United States Using Distributed Computing—✦Nicoleta Serban, Georgia Institute of Technology

3:35 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

224 CC-West 301

In Memory of Charles Stein—Invited

Memorial, History of Statistics Interest Group

Organizer(s): Emmanuel Candes, Stanford University; Jacqueline Meulman, Stanford University

Chair(s): Bradley Efron, Stanford University

2:05 p.m. Measuring Sample Quality with Stein's Method—✦Lester Mackey, Microsoft Research New England

2:35 p.m. Charles Stein and Shrinkage Estimation—✦Carl Morris, Harvard University

3:05 p.m. Charles Stein in the Beginning—✦Edward George, Wharton, University of Pennsylvania

3:35 p.m. Floor Discussion

Topic Contributed Sessions 2:00 p.m.—3:50 p.m.

225 CC-West 219

■ The Interface of Functional Data Analysis and Biomedical Applications—Topic Contributed

Biometrics Section, Section on Statistical Learning and Data Science, Section on Nonparametric Statistics

Organizer(s): Gen Li, Columbia University

Chair(s): Gen Li, Columbia University

2:05 p.m. Multiple Change Point Detection for Symmetric Positive Definite Matrices—✦Dehan Kong, University of Toronto; Zhenhua Lin, University of Toronto; Qiang Sun, University of Toronto

2:25 p.m. Gradient Synchronization to Quantify Brain Functional Connectivity—✦Jane-Ling Wang, Univ of California-Davis; Yang Zhou, UC Davis; Hans Mueller, UC Davis; Owen Carmichael, Pennington Biomedical Research Center

2:45 p.m. Detecting Latent Structures in Complex Functional Data—✦Yixuan Qiu, Purdue University; Lingsong Zhang, Purdue University

3:05 p.m. Manifold Data Analysis with Applications to High-Resolution 3D Imaging—✦Matthew Reimherr, Pennsylvania State University

3:25 p.m. A Bootstrap-Based Goodness-of-Fit Test of Covariance for Functional Data—✦Luo Xiao, North Carolina State University; Stephanie Chen, North Carolina State University; Ana-Maria Staicu, NC State University

3:45 p.m. Floor Discussion

226 CC-West 214

■ ● Pediatric Trials - to Extrapolate or Not to Extrapolate—Topic Contributed

Biopharmaceutical Section, Biopharmaceutical Section, Biometrics Section

Organizer(s): Freda Cooner, Sanofi

Chair(s): Fanni Natanegara, Eli Lilly and Company

2:05 p.m. Extrapolation in Pediatric Drug Development: an Evolving Science—Yeruk Mulugeta, FDA; ✦Lynne Yao, US FDA

2:25 p.m. The Promise and Peril of Pediatric Extrapolation—✦Robert Nelson, Johnson & Johnson

2:45 p.m. Utilizing Partial Extrapolation of Adult Data to Develop Confirmatory Pediatric Trials—✦JonDavid Sparks, Eli Lilly and Company; Ryan Sides, Eli Lilly and Company; Fanni Natanegara, Eli Lilly and Company

3:05 p.m. Bayesian Applications for Extrapolation from Adult to Pediatric Data—✦Amy Xia, Amgen

3:25 p.m. Disc: Margaret Gamalo-Siebers, Eli Lilly & Co

3:45 p.m. Floor Discussion

227 CC-West 203

■ ● Bayesian Variable Selection and Shrinkage in Epidemiology Studies—Topic Contributed

Section on Statistics in Epidemiology, International Indian Statistical Association, WNAR

Organizer(s): Jaya M Satagopan, Memorial Sloan Kettering Cancer Center

Chair(s): Sujata M Patil, Memorial Sloan Kettering Cancer Center

2:05 p.m. A Bayesian Hierarchical Framework for Pathway Analysis in Genome-Wide Association Studies—✦Swati Biswas, University of Texas at Dallas; Lei Zhang, University of Texas at Dallas; Pankaj Choudhary, University of Texas at Dallas

2:25 p.m. A Default Prior for the Intercept Parameter in Logistic Regression—✦Philip Boonstra, University of Michigan; Ananda Sen, University of Michigan

2:45 p.m. Dynamic Variable Selection with Spike-And-Slab Process Priors—✦Kenichiro McAlinn, University of Chicago; Veronika Rockova, University of Chicago

3:05 p.m. Multiethnic Joint Analysis of Marginal SNP Effects—✦David Conti, University of Southern California; Kan Wang, University of Southern California; Chris Haiman, University of Southern California; Paul Newcombe, MRC Biostatistics Unit

3:25 p.m. Penalized Shrinkage Estimation in Reduced-Rank Time-To-Event Data—✦Ananda Sen, University of Michigan

3:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

228 CC-West 215/216

■ ● Innovative Statistical Designs with Real Life Case Studies for New Paradigms in Oncology Drug Development—Topic Contributed

Biopharmaceutical Section, Society for Clinical Trials, ENAR

Organizer(s): Xiaoyun (Nicole) Li, Merck

Chair(s): Robert Beckman, Georgetown University

2:05 p.m. An Application of 2-In-1 Adaptive Phase 2/3 Design for Expedited Oncology Drug Development—✦Xinqun (Maggie) Chen, Merck & Co., Inc.; Linda Sun, Merck & Co., Inc.; Cong Chen, Merck & Co.

2:25 p.m. A Generalized Design for a Confirmatory Basket Trial—Robert Beckman, Georgetown University; ✦Xiaoyun (Nicole) Li, Merck

2:45 p.m. GBM AGILE: a Phase II/III Platform Design with Signature Identification—✦Todd Graves, Berry Consultants LLC; Donald A Berry, Berry Consultants and M.D. Anderson Cancer Center; Jason Connor, ConfluenceStat LLC

3:05 p.m. A Parametric Multiple Comparison Procedure for Clinical Trials with Planned Evaluation of Treatment Effect in Pre-Defined Subgroups and Interim Analyzes—✦Liang Fang, MyoKardia; Ron Yu, Gilead Sciences, Inc.; Zhishen Ye, Gilead Sciences; Neby Bekele, Gilead Sciences; Ming Lin, Gilead Sciences

3:25 p.m. Disc: Yu Ding, Merck

3:45 p.m. Floor Discussion

229 CC-East 9

■ ● Statistical Process Monitoring of High-Volume Data Streams—Topic Contributed

Quality and Productivity Section, Section on Physical and Engineering Sciences

Organizer(s): Emmanuel Yashchin, IBM Research

Chair(s): Ron S Kenett, KPA Group

2:05 p.m. Adaptive Tests for Object Detection—✦Grigory Sokolov, ; Alexander G. Tartakovsky, Moscow Institute of Physics and Technology

2:25 p.m. Model-Free Classification of Multi-Channel EEG via the Epsilon-Complexity Theory—✦Alexandra Piryatinska, San Francisco State University; Boris Darkhovsky, Institute for Systems Analysis FRC CRC RAS,

2:45 p.m. Multi-Stage Processes Monitoring and Diagnostics Using Timeslides—✦Emmanuel Yashchin, IBM Research

3:05 p.m. Controlled Automatic Detection of Detects in Dependent Image Data—✦Ansgar Steland, Institut Fuer Statistik Und Wirtschaftsmathematik RWTH Aachen

3:25 p.m. Some Sampling and Aggregation Strategies for Statistical Process Monitoring—✦William H Woodall, Virginia Tech; Inez Zwetsloot, City University of Hong Kong

3:45 p.m. Floor Discussion

230 CC-West 223

■ ● Recent Advances in Nonexchangeable, Dependent, Random Partition and Feature Allocation Models—Topic Contributed

International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science

Organizer(s): Garritt L Page, Brigham Young University

Chair(s): Richard Warr, Brigham Young University

2:05 p.m. Bayesian Space-Time Partitioning by Sampling and Pruning Spanning Trees—✦Rosangela Loschi, Universidade Federal de Minas Gerais; Leonardo Teixeira, Purdue University; Renato AssunÁ„o , Universidade Federal de Minas Gerais

2:25 p.m. Determinantal Point Process Mixtures via Spectral Density Approach—✦Fernando Quintana, Pontificia Universidad Catolica De Chile; Alessandra Guglielmi, Politecnico de Milano; Ilaria Bianchini, Politecnico de Milano

2:45 p.m. Attraction Indian Buffet Distribution—✦David Dahl, Brigham Young University; Richard Warr, Brigham Young University

3:05 p.m. Exploiting Conjugacy to Build Time Dependent Feature Allocation Models—✦Raffaele Argiento, Universit‡ di Torino; Ilaria Bianchini, Politecnico de Milano; Jim Edward Griffin, University of Kent

3:25 p.m. Recent Advances in Dependent Random Partition Models—✦Garritt L Page, Brigham Young University; Fernando Quintana, Pontificia Universidad Catolica De Chile

3:45 p.m. Floor Discussion

231 CC-West 114

■ Uses of Alternative Data Sources for Federal Statistics—Topic Contributed

Government Statistics Section, Social Statistics Section

Organizer(s): Zachary H Seeskin, NORC at the University of Chicago

Chair(s): Felicia LeClere, NORC at the University of Chicago

2:05 p.m. Current Challenges in Linking Federal and State Data for Evidence-Building—✦Robert Goerge, Chapin Hall at the University of Chicago; Leah Gjertson, Chapin Hall at the University of Chicago

MONDAY

2:25 p.m. Uses of Alternative Data Sources for Public Health Statistics and Policy Making: Challenges and Opportunities—✦Zachary H Seeskin, NORC at the University of Chicago; Felicia LeClere, NORC at the University of Chicago; Jaehoon Ahn, NORC at the University of Chicago; Joshua Williams, Office of the Assistant Secretary for Planning and Evaluation

2:45 p.m. Things Fall Apart: Creating Robust Nowcasters for Shifting Ground Truth—✦Margaret Levenstein, Inter-university Consortium for Political and Social Research

3:05 p.m. Disc: Sherry L Emery, NORC at the University of Chicago

3:25 p.m. Disc: Mike L. Cohen, Committee on National Statistics

3:45 p.m. Floor Discussion

232 CC-West 117

■ Methods and Tools for DoD Test and Evaluation—Topic Contributed

Section on Statistics in Defense and National Security, Section on Physical and Engineering Sciences

Organizer(s): Kelly M Avery, Institute for Defense Analyses

Chair(s): Jane Pinelis, IDA

2:05 p.m. Power Approximations for Reliability Test Designs—✦Rebecca Dickinson,

2:25 p.m. Planning a Missile Test Using Bayesian Sequential Design of Experiments—✦Keyla Pagan-Rivera,

2:45 p.m. Comparing MandS Output to Live Test Data: a Missile System Case Study—✦Kelly M Avery, Institute for Defense Analyses

3:05 p.m. Latent Variable Modeling for Validating Custom Scales—✦Stephanie Lane, Institute For Defense Analyses

3:25 p.m. CiTools: Quantifying Uncertainty for Statistical Models in R—✦Matthew Avery,

3:45 p.m. Floor Discussion

233 CC-West 204

ASA Biometrics Section JSM Travel Awards (I)—Topic Contributed

Biometrics Section

Organizer(s): Youyi Fong, Fred Hutchinson Cancer Research Center

Chair(s): Jiacheng Wu, Univesity of Washington

2:05 p.m. Studentized Sensitivity Analysis in Paired Observational Studies—✦Colin Fogarty, Massachusetts Institute of Technology

2:25 p.m. Nonparametric Variable Importance Assessment Using Machine Learning Techniques—✦Brian Williamson, University of Washington; Peter Gilbert, Fred Hutchinson Cancer Research Center; Noah Simon, University of Washington; Marco Carone, University of Washington

2:45 p.m. A Semiparametric Approach to Model Effect Modification—✦Muxuan Liang, University of Wisconsin-Madison; Menggang Yu, University of Wisconsin-Madison

3:05 p.m. Bayesian Latent Hierarchical Model for Transcriptomic Meta-Analysis to Detect Biomarkers with Clustered Meta-Patterns of Differential Expression Signals—✦Zhiguang Huo, University of Florida; Chi Song, Ohio State University; George Tseng, University of Pittsburgh

3:25 p.m. Minimal Approximately Balancing Weights: Asymptotic Properties and Practical Considerations—✦Yixin Wang, Columbia University; Jose Zubizarreta, Harvard University

3:45 p.m. Floor Discussion

234 CC-West 222

SBSS Student Travel Award Session 2—Topic Contributed

Section on Bayesian Statistical Science

Organizer(s): Robert Gramacy, Virginia Tech

Chair(s): Robert Gramacy, Virginia Tech

2:05 p.m. Nonparametric Generalized Fiducial Inference for Survival Functions Under Censoring—✦Yifan Cui, University of North Carolina at Chapel Hill; Jan Hannig, University of North Carolina

2:25 p.m. The Inverse Gamma-Gamma Pior for Optimal Posterior Contraction and Multiple Hypothesis Testing—✦Ray Bai, University of Florida; Malay Ghosh, University of Florida

2:45 p.m. Bayesian Regression with Undirected Network Predictors with an Application to Brain Connectome Data—✦Sharmistha Guha, UC Santa Cruz; Abel Rodriguez, UC Santa Cruz

3:05 p.m. Bayesian Nonparametric Differential Analysis with Application to Colorectal Cancer DNA Methylation—✦Chiyu Gu, University of Missouri; Subharup Guha, University of Florida; Veera Baladandayuthapani, UT MD Anderson Cancer Center; Jeffrey S Morris, The University of Texas M.D. Anderson Cancer Center

3:25 p.m. Covariances, Robustness, and Variational Bayes—✦Ryan Giordano, ; Tamara Broderick, Massachusetts Institute of Technology; Michael Jordan, UC Berkeley

3:45 p.m. Floor Discussion

235 CC-West 115

■ Best Student Papers Awarded by the ASA Consortium of GSS/SSS/SRMS—Topic Contributed

Survey Research Methods Section, Government Statistics Section,

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Social Statistics Section
Organizer(s): Asaph Young Chun, US Census Bureau
Chair(s): Stephanie Ewert Galvin, US Census Bureau

2:05 p.m. A Classical Regression Framework for Mediation Analysis with Applications to Behavioral Science—✦Christina Saunders,

2:25 p.m. Stochastic Interventions on Continuous Instruments:Estimating the Effects of Visitation on Recidivism—✦Jacqueline A Mauro, Carnegie Mellon University; Edward Kennedy, Carnegie Mellon University; Daniel Nagin, Carnegie Mellon University

2:45 p.m. Practical Bayesian Inference for Record Linkage—✦Brendan McVeigh, Carnegie Mellon University; Jared S Murray, University of Texas at Austin

3:05 p.m. Constructing Independent Evidence from Regression and Instrumental Variables with an Application to the Effect of Violent Conflict on Altruism and Risk Preference—✦Bikram Karmakar, University of Pennsylvania; Dylan Small, University of Pennsylvania

3:25 p.m. Bayesian Model-Assisted Estimation for Functional Data in Survey Sampling—✦Luis Fernando Campos, Harvard University

3:45 p.m. Floor Discussion

MONDAY

236 CC-West 212

SLDS Student Paper Awards—Topic Contributed

Section on Statistical Learning and Data Science
Organizer(s): Todd Ogden, Columbia University

2:05 p.m. Sparse-Input Neural Networks for High-Dimensional Nonparametric Regression and Classification—✦Jean Feng, ; Noah Simon, University of Washington

2:25 p.m. Valid Inference Corrected for Outlier Removal—✦Shuxiao Chen, Cornell Univ; Jacob Bien, University of Southern California

2:45 p.m. Variable Selection for Highly Correlated Predictors—✦Fei Xue, University of Illinois at Urbana-Champaign; Annie Qu, University of Illinois at Urbana-Champaign

3:05 p.m. PULasso: High-Dimensional Variable Selection with Presence-Only Data—✦Hyebin Song, UW-Madison

3:25 p.m. Network Augmented Classification—✦Boang Liu, University of Michigan; Ji Zhu, University of Michigan

3:45 p.m. Floor Discussion

Contributed Sessions 2:00 p.m.—3:50 p.m.

237 CC-West 208

SPEED: Missing Survey Data: Analysis, Imputation, Design and Prevention—Contributed

Survey Research Methods Section, Government Statistics Section, Section on Statistics in Defense and National Security
Chair(s): Stas Kolenikov, Abt Associates

2:05 p.m. Estimating Survey Attrition Phases Using Change-Point Models—✦Camille Hochheimer, Virginia Commonwealth University; Roy T Sabo, Virginia Commonwealth University; Alex H Krist, Virginia Commonwealth University

2:10 p.m. Census Efforts to Reduce the Undercount of Young Children—✦Gina Walejko, U.S. Census Bureau; Scott Konicki, U.S. Census Bureau

2:15 p.m. Is There a 'safe Area' Where the Nonresponse Rate Has Only a Modest Effect on Bias Despite Non-Ignorable Nonresponse?—✦Dan Hedlin, Stockholm university

2:20 p.m. Design-Based Alternative Calibration Weighting Under Nonresponse in Survey Sampling—✦Per Andersson, Stockholm University

2:25 p.m. A Simulation Study to Evaluate How Sample Weight Adjustment with Prevalence Calibration for the National Health and Nutrition Examination Survey (NHANES) Affects Nonresponse Bias—✦Te-Ching Chen, CDC/NCHS; Jennifer Parker, CDC/NCHS; Tala Fakhouri, CDC/NCHS

2:30 p.m. Degrees of Freedom in Multiple Imputation: The Original vs. The Adjusted in 2015 National Hospital Ambulatory Medical Care Survey—✦Qiyuan Pan, CDC/NCHS/DHCS; Rong Wei, National Center for Health Statistics

2:35 p.m. Nonresponse Bias Studies for Department of Defense Surveys—✦Eric Falk, Department of Defense/Office of People Analytics

2:40 p.m. Exploring Reminder Calls Intended to Increase Interviewer Compliance with Data Collection Protocols—✦Amanda Nagle, U.S. Census Bureau; Kevin Tolliver, U.S. Census Bureau

2:45 p.m. Effect of the Survey Name on Response Rates and Survey Estimates—✦David McGrath, Department of Defense Office of People Analytics

2:50 p.m. Early Bird Gets the Worm? Effects of Differential Incentives on Mode Choice and Response Rates—✦Patricia LeBaron, RTI International; Nathaniel Taylor, RTI International; Leah Fiacco, RTI International; Melissa Helton, RTI International; Amy Henes, RTI International; Stephen King, RTI International

3:00 p.m. Nonresponse Bias Analysis for the Medicare Current Beneficiary Survey—✦Kirk Wolter, NORC at the

University of Chicago; Ying Li, NORC at the University of Chicago; Whitney Murphy, NORC at the University of Chicago

3:05 p.m. Using Predictive Modeling in Survey Methodology to Identify Panel Nonresponse—✦Bernd Weiss, GESIS - Leibniz-Institute for the Social Sciences; Jan-Philipp Kolb, GESIS - Leibniz-Institute for the Social Sciences; Christoph Kern, University of Mannheim

3:10 p.m. Does Sequence of Imputed Variables Matter in Hot Deck Imputation for Large-Scale Complex Survey Data?—✦Amang Sukasih, RTI International; Peter Frechtel, RTI International; Karol Krotki, RTI International

3:15 p.m. Tree-Based Doubly-Robust Nonparametric Multiple Imputation—✦Darryl Creel,

3:20 p.m. Multiple Imputation Methods Addressing Planned Missingness in a Multi-Phase Survey—✦Irina Bondarenko, University of Michigan; Yun Li, University of Michigan; Paul Imbriano, University of Michigan

3:25 p.m. Outcomes of Suicide Risk Assessment and Safety Planning in a Longitudinal Mixed Mode Survey of Patients with Complex Psychiatric Disorders—✦Danna Moore, Washington State University-Social & Economic Science Research Center; John Fortney, University of Washington, School of Medicine; Dan Vakoch, Washington State Univesity-Social and Economic Sciences Research Center

3:30 p.m. "You're Not from Around Here, Are You?": How Regional Accent Affects Survey Cooperation—✦Matt Jans, ICF; James Dayton, ICF; Matt McDonough, ICF

3:35 p.m. Imputation of Small Number of New Questions in the Large Survey—✦Di Xiong, UCLA SPH; Yan Wang, Field School of Public Health, UCLA; Honghu Liu, UCLA

238 CC-West 209

SPEED: Biopharmaceutical Applications: Trials, Biomarkers, and Enpoint Validation—Contributed

Biopharmaceutical Section

Chair(s): Jiawei Wei, Novartis

2:05 p.m. Subgroup Mixable Exact Simultaneous Confidence Intervals for Logical Selection of a CDx Cut-Point—✦Jason Hsu, Ohio State University

2:10 p.m. A Location-Adjusted Approach to the Covariate-Adjusted Response-Adaptive Allocation Design in Multi-Center Trials—✦Brian S Di Pace, Virginia Commonwealth University; Roy T Sabo, Virginia Commonwealth University; David C. Wheeler, Virginia Commonwealth University

2:15 p.m. The Subgroup Mixable Estimation (SME) Principle, with Application to Binary Outcomes—✦Hui-Min Lin, Takeda Pharmaceuticals International Co.

2:20 p.m. Sample Size Calculation for Pilot Studies—✦Chi-Hong Tseng, UCLA; Danielle SIM, UCLA

2:25 p.m. Determine Appropriate Sample Size for a Biomarker Signature Discovery Problem Using Penalized Regression—✦Xiang Li, Statistics and Decision Sciences, Janssen Research & Development, LLC; Hong Tian, Janssen Pharmaceutical; Liang Xiu, Janssen Research & Development, LLC

2:30 p.m. Statistical Considerations for Using Multiple Databases to Build a Biomarker Probability Tool—✦Feng Gao, ; Shijia Bian, Biogen; Wenting Wang, Biogen; Nancy Maserejian, Biogen; Judith Jaeger, Albert Einstein College of Medicine; Robert Robert Engle , Biogen; Timothy Swan, Biogen; James McInnch, Alnylam Pharmaceuticals; Feng Gao, Biogen

2:35 p.m. Statistical Issues in Cardiac Biomarker: Data from the HESI-Sponsored Consortium—✦Alan Chiang, Eli Lilly and Company

2:40 p.m. Phase I Designs That Allow for Uncertainty in the Attribution of Adverse Events—✦Alexia Iasonos, Memorial Sloan Kettering Cancer Center; John O'Quigley, Universit'e Pierre et Marie Curie,

2:45 p.m. Statistical Modeling of a Clinical Bridging Study in an Enrichment Biomarker Trial When Baseline Samples Are Unavailable—✦Qui Tran, Amgen; Chris Holland, Amgen; Cassie Dong, Amgen

2:50 p.m. A Bayesian Analysis of Small N Sequential Multiple Assignment Randomized Trials (SnSMARTs)—✦Boxian Wei, University of Michigan, Ann Arbor; Kelley M Kidwell, University of Michigan; Thomas M Braun, University of Michigan; Roy N Tamura, University of South Florida

3:00 p.m. Bayesian Non-Parametric Models in a Phase II Clinical Trial with Survival Endpoint—✦Jack Shiansong Li, Celgene Corporation; Joe Weichung Shih, Rutgers University

3:05 p.m. Pre-Specified Bias Evaluation of ECG Measurements for Assay Sensitivity Assessment—✦Xiaoli Hou, Merck; Nancy Kim, Merck; Wei Gao, Merck; Leticia Arrington, Merck; Kajal Larson, Merck

3:10 p.m. Improvements to the Escalation with Overdose Control Design and a Comparison with the Restricted Continual Reassessment Method—✦Lingyun Ji, University of Southern California; Richard Sposto, University of Southern California; Juan Pablo Lewinger, University of Southern California; Mark Krailo, University of Southern California; David Conti, University of Southern California; Susan Groshen, University of Southern California; Shahab Asgharzadeh, University of Southern California

3:15 p.m. Statistical Approaches for Assessing the Utility of Urinary Glycosaminoglycans as a Surrogate Endpoint in Clinical Trials—✦Di Xiao, The Food and Drug Adminstration; Yeh-Fong Chen, US FDA; Min Min, U.S. Food and Drug Administration, CDER/OTS/OB

3:20 p.m. A Novel Bayesian Model for Assessing Surrogate Endpoint—✦Cheng Zheng, Novartis Pharmaceuticals;

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Simon Wandel, Novartis Pharmaceuticals; Aiesha Zia, Novartis Pharmaceuticals; Jagannath Ghosh, Novartis Pharmaceuticals; Nathalie Fretault, Novartis Pharmaceuticals; Kalyanee Viraswami Appanna, Novartis Pharmaceuticals

3:25 p.m. Optimal Covariate Weighting to Identify Differentially Expressed Biomarker in Daily Disposable Contact Lenses—Youssef Toubouti, J&J Vision Care Inc.; ✦Mohamad Shakil Hasan, Oxford Life Science

3:30 p.m. Statistical Considerations for Bridging Studies in Precision Medicine Programs with Drug-Device Co-Development—✦Shunguang Wang, Novartis Analytics; Meijuan Li, FDA; Xiaohong Li, Novartis Analytics; Jincao Wu, CDRH/US. Food and Drug Adminstration; Robinson Douglas, Novartis Pharmaceuticals

3:35 p.m. Simultaneous Confidence Intervals for Assessing SNP Effects on Treatment Efficacy—✦Yushi Liu, GSS, Eli Lilly and Company

3:40 p.m. Flexible Methods for Accounting for Distributional Misspecification in Response-Adaptive Clinical Trials—✦Victoria C Garcia, VCU; Adam Sima, Virginia Commonwealth University

MONDAY

Contributed Sessions 2:00 p.m.—3:50 p.m.

239 CC-West 218

■ **Omics II—Contributed**

Biometrics Section

Chair(s): Yu Cao, Virginia Commonwealth University

2:05 p.m. A Correlated Random Effects Hurdle Model for Detecting Differentially Expressed Genes in Discrete Single Cell RNA Sequencing Data—✦Michael Sekula, University of Louisville; Jeremy Gaskins, University of Louisville; Susmita Datta, ASA Committee on Women in Statisitcs

2:20 p.m. Using Standard Microbiome Reference Groups to Simplify Beta-Diversity Analyzes and Facilitate Independent Validation—✦Mitchell Gail, National Cancer Institute, Biostatistics Branch; Marlena Maziarz, National Cancer Institute, Biostatistics Branch; Ruth Pfeiffer , National Cancer Institute; Yunhu Wan, National Cancer Institute, Biostatistics Branch

2:35 p.m. GLM-Based Latent Variable Ordination Method for Microbiome Samples—✦Michael Sohn, University of Rochester; Hongzhe Li, University of Pennsylvania

2:50 p.m. Zero-Inflated Generalized Dirichlet Multinomial (ZIGDM) Regression Model for Microbiome Compositional Data—✦Zheng-Zheng Tang, University of Wisconsin-Madison; Guanhua Chen, University of Wisconsin-Madison

3:05 p.m. A Bilinear Regression Approach to Inform Variable Selection by Continuous Functional Annotation Information—✦Pixu Shi, ; Sunduz Keles, University of Wisconsin, Madison; Ming Yuan, Columbia University

3:20 p.m. A Two-Part Semiparametric Model for Metabolomics and Proteomics Data—✦Li Chen, University of Kentucky; Yuntong Li, University of Kentucky; Teresa Fan, University of Kentucky; Andrew Lane, University of Kentucky; Woo-Young Kang, University of Kentucky; Susanne Arnold, University of Kentucky; Arnold Stromberg, University of Kentucky; Chi Wang, University of Kentucky

3:35 p.m. Powering Biomarker Discovery Studies for Training and Validation—✦Olga Demler, Harvard Medical School; Nancy R Cook, Harvard Medical School

240 CC-West 217

■ **Distributions and Significance—Contributed**

Biometrics Section

Chair(s): Chenguang Wang, John Hopkins University

2:05 p.m. Comparison of Interval Estimation in Machine Learning—✦Dai Feng, Merck; Andy Liaw, Merck & Co., Inc.; Vladimir Svetnik, Merck

2:20 p.m. Analysis of Decision Makers' Strategies—✦Mihoko Minami, Keio University

2:35 p.m. Estimation of Parameters of a Mixture of Two Exponential Distributions—✦Trijya Singh,

2:50 p.m. Exceedance Probability for Parameter Estimates—✦Brian Segal, Flatiron Health

3:05 p.m. The Problems with the Kappa Statistic as a Metric of Inter-Observer Agreement on Lesion Detection Using a Third-Reader Approach When Locations Are Not Pre-Specified—✦Joanna H Shih, National Cancer Institute; Matthew D Greer, National Cancer Institute; Baris Turkbey, National Cancer Institute

3:20 p.m. Evaluating the Performance of Different Confidence Intervals for the Bland-Altman Limits of Agreement for Non-Normal Data—✦Nga Nguyen, UT MD Anderson Cancer Center; Yisheng Li, UT MD Anderson Cancer Center

3:35 p.m. Cross-Validation for Dependent Multiple Testing—✦Josh Price, University of Arkansas; Jyotishka Datta, University of Arkansas

241 CC-West 210

SLDS CPapers New—Contributed

Section on Statistical Learning and Data Science

Chair(s): Todd Ogden, Columbia University

2:05 p.m. Deep Neural Network Model for Predicting Gene Activity Using Three-Dimensional Structures of Chemical

Compounds—✦Pingzhao Hu, University of Manitoba; Md. Mohaiminul Islam, University of Manitoba; Kevin Jeffers, University of Manitoba; Andrew M Hogan , University of Manitoba; Rebecca Davis, University of Manitoba; Silvia Cardona, University of Manitoba

2:20 p.m. A Weighted Learning Approach for Sufficient Dimension Reduction in Binary Classification—✦Seung Jun Shin, Korea University

2:35 p.m. Prediction on Network-Linked Data by Matrix Variate Models—✦Xuefei Zhang, University of Michigan; Ji Zhu, University of Michigan

2:50 p.m. A Cluster Elastic Net for Multivariate Regression—✦Ben Sherwood, University of Kansas; Bradley S Price, West Virginia University

3:05 p.m. The Effect of Sampling Methods on Machine Learning Models for Predicting Long-Term Length of Stay: a Case Study for Rhode Island Hospitals—✦Son Nguyen, Bryant University; John Quinn, bryant university; Alicia Lamere, Bryant University; Alan Olinsky, bryant university

3:20 p.m. A Scalable Classification Method Based on the Area Under the Receiver Operating Curve—✦Wenyi Wu, University of Michigan; Ji Zhu, University of Michigan

3:35 p.m. Ensemble of Iterative Classifier Chains for Multi-Label Classification—✦Zhoushanyue He, University of Waterloo; Matthias Schonlau, University of Waterloo

242 CC-West 304/305

Multiple Testing and Feature Selection—Contributed

IMS

Chair(s): Kean Ming Tan, University of Minnesota

2:05 p.m. Further Improvements in Local FDR Based Grouped Hypotheses Testing—✦Shinjini Nandi, Temple University; SANAT SARKAR, Temple University

2:20 p.m. Visualising Model Stability Information for Better Prognosis Based Network-Type Feature Extraction—✦Connor Smith, University of Sydney; Samuel Mueller, The University of Sydney; Boris Guennewig, University of Sydney

2:35 p.m. Sequential Multiple Testing with Generalized Error Control: An Asymptotic Optimality Theory—✦Yanglei Song, University of Illinois at Urbana-Champaign; Georgios Fellouris, University of Illinois at Urbana-Champaign

2:50 p.m. Asymptotic Analysis of Large-Scale Multi-Relational Network Through Latent Variable Modeling—✦Zhi Wang, Columbia University; Xueying Tang, Columbia University; Jingchen Liu, Columbia University

3:05 p.m. Multiscale Scanning in Inverse Problems: Applications to Super-Resolution Microscopy—✦Frank Werner, Max Planck Institute for Biophysical Chemistry; Axel Munk, University of Goettingen; Katharina Proksch, University of Goettingen

3:20 p.m. Limit Theorems and Theoretical Properties of General Multiscale Scan Statistics—✦Katharina Proksch, University of Goettingen; Frank Werner, Max Planck Institute for Biophysical Chemistry; Axel Munk, University of Goettingen

3:35 p.m. Approximate L0-Penalized Estimation of Piecewise-Constant Signals on Graphs—✦Zhou Fan, Stanford University; Leying Guan, Stanford University

243 CC-West 121

● Brain Structural and Functional Connectivity Analysis—Contributed

Section on Statistics in Imaging

Chair(s): Daniel Rowe, Marquette University

2:05 p.m. Functional Mediation Analysis of Functional Magnetic Resonance Imaging Experiments—✦Yi Zhao, Johns Hopkins Bloomberg School of Public Health; Xi Luo, Brown University; Martin A Lindquist, Johns Hopkins University; Brian Caffo, Johns Hopkins University

2:20 p.m. Frechet Estimation of Dynamic Covariance Matrices, with Application to Regional Myelination in the Developing Brain—✦Alexander Petersen, University of California, Santa Barbara; Hans Mueller, UC Davis; Sean Deoni, Brown University

2:35 p.m. Likelihood Based Dynamic Connectivity Analysis Using Hidden Semi-Markov Models—✦Heather Shappell, Johns Hopkins University Bloomberg School of Public Health; Brian Caffo, Johns Hopkins University; James Pekar, Johns Hopkins University F.M. Kirby Research Center; Martin A Lindquist, Johns Hopkins University

2:50 p.m. A Bayesian Nonparametric Approach to Estimating Dynamic Connectivity States in Brain Signals—✦Chee-Ming Ting, King Abdullah University of Science and Technology; Hernando Ombao, King Abdullah University of Science and Technology

3:05 p.m. Analysis of Resting-State Functional Brain Connectivity Using a Hierarchical Bayesian Mixture Model—✦Anders Lundquist, Umea University; Tetiana Gorbach, UmeÂ University; Xavier de Luna, UmeÂ University; Lars Nyberg, UmeÂ University; Alireza Salami, Karolinska Institute

3:20 p.m. Comparison of Functional Brain Networks via Correlation Preserving Random Networks—✦Ixavier Higgins, Rollins School of Public Health-Emory University; Suprateek Kundu, Emory University Rollins School of Public Health; Ying Guo, Emory University

3:35 p.m. The Spatial Wishart Process and Its Applications to Diffusion Tensor Images—✦Zhou Lan, North Carolina

State University; Brian Reich, North Carolina State University; Joseph Guinness, NC State University; Dipankar Bandyopadhyay, Virginia Commonwealth University

244 CC-West 202

Missing Data; Causal Inference—Contributed

Section on Statistics in Epidemiology, Survey Research Methods Section

Chair(s): Shankar Viswanathan, Albert Einstein College of Medicine

2:05 p.m. Calibrating Sensitivity Analyzes with a Probability Structure on Hidden Bias—✦Bo Zhang, Univ of Pennsylvania

2:20 p.m. Estimate Cognitive Decline in Presence of Non-Random Missing Data and Ceiling Effect—✦Cuiling Wang, Albert Einstein College of Medicine; Charles B Hall, Albert Einstein College of Medicine; Richard B Lipton, Albert Einstein College of Medicine; Joe Verghese, Albert Einstein College of Medicine; Mindy J Katz, Albert Einstein College of Medicine

2:35 p.m. Characterising for Sensitivity Analyzes the Participant Attrition in a Childhood Cohort with Large Initial Drop-Out—✦Petr Otahal, Menzies Institute for Medical Research University of Tasmania; Leigh Blizzard, Menzies Institute of Medical Research, University of Tasmania; David W Hosmer, University of Massachusetts; Jim Stankovich, School of Medicine, University of Tasmania; Alison Venn, Menzies Institute for Medical Research University of Tasmania

2:50 p.m. Strategies for Analyzing Summary Variables in the Presence of Partially Missing Longitudinal Data—✦Jennifer Thompson, Vanderbilt University; Rameela Chandrasekhar, Vanderbilt University

3:05 p.m. Multiple Imputation Strategies for Handling Missing Data When Generalizing Randomized Clinical Trial Findings Through Propensity Score-Based Methodologies—✦Albee Ling, Stanford University; Maya Mathur, Stanford University; Kris Kapphahn, Stanford University; Maria Montez-Rath, Stanford University; Manisha Desai, Stanford University

3:20 p.m. Cluster Mean Centering in Hierarchical Linear Models—✦Noa Molshatzki, University of Southern California; Sandrah P. Eckel, University of Southern California

3:35 p.m. Assessing Indirect Effect in a Mediation Model with a Censored Mediator—✦Jian Wang, The University of Texas MD Anderson Cancer Center; Sanjay Shete, The University of Texas MD Anderson Cancer Center

245 CC-West 122

Methods for Analysis of High-Dimensional Data—Contributed

SSC

Chair(s): John Braun, University of British Columbia

2:05 p.m. Double Random Forest—✦Yung-Seop Lee, Dongguk University; Hyun-Joong Kim, Yonsei University; Sun-Woo Han, Yonsei University

2:20 p.m. Estimating a Time-Varying Network Between Neurons with an ODE Model—✦Haixu Wang, Simon Fraser University

2:35 p.m. Sparse Functional Additive Models—✦Peijun Sang, Simon Fraser University; Liangliang Wang, Simon Fraser University; Jiguo Cao, Simon Fraser University

2:50 p.m. Efficient Forward Algorithms for Inverse Burrows-Wheeler Transformation—✦Gun Ho Jang, Ontario Institute for Cancer Research

3:05 p.m. Capture-Recapture Methods for Data on the Activation of Applications on Mobile Phones—✦Mamadou YAUCK, Universite Laval; Louis-Paul Rivest, Université Laval; Greg Rothman, NinthDecimal

3:20 p.m. Homogeneity Test Under Finite Mixture with Multi-Dimensional Parameter Kernel—✦Ho Yin Ho, University of British Columbia; Jiahua Chen, University of British Columbia

3:35 p.m. ODE Parameter Estimation with L_1 Distance—✦Yuping Yang, Simon Fraser University; Jiguo Cao, Simon Fraser University

246 CC-West 120

New Mothods for Biomedical and Genetics Data—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Yunda Huang, Fred Hutchinson Cancer Research Center

2:05 p.m. Distinguishing Close Linkage from Pleiotropy in Multiparental Populations—✦Frederick Boehm, University of Wisconsin - Madison; Mark Keller, University of Wisconsin-Madison; Alan Attie, University of Wisconsin-Madison; Brian Yandell, University of Wisconsin-Madison; Karl Broman, University of Wisconsin-Madison

2:20 p.m. Critical Steps for Composite Endpoint Analysis—✦Jerry J. Li, Merck & Co., Inc.

2:35 p.m. Mechanistic Model Based Simulation for Dosing Regimen Optimization—✦Siyan Xu, Novartis Institutes for Biomedical Research, Inc; Yu-Yun Ho, Novartis Pharmaceuticals Corporation; Wenping Wang, Novartis Pharmaceuticals Corporation

2:50 p.m. A Novel Association Testing Model Between Rare

Variants and Multiple Discrete and Continuous Traits—✦Han Hao, University of North Texas; Xuexia Wang, University of North Texas

3:05 p.m. 'sTATISTICAL JUSTIFICATION' of SUBJECT NUMBERS in PRECLINICAL BIOMEDICAL RESEARCH: MORE THAN HYPOTHESIS TESTING—✦Penny Reynolds,

3:20 p.m. Combining Subsets of P-Values—✦Nick Heard, Imperial Coll. of Sci. & Tech.

3:35 p.m. Linear Regression Models with Ordered Categorical Covariates—✦Julia (Kelsall) Crook, Mayo Clinic

247 CC-West 205

● Clinical Trial Design- 2—Contributed

Biopharmaceutical Section

Chair(s): Weining Robieson,

2:05 p.m. Extension of Bayesian Logistic Regression Model (BLRM) for Dose Timing Selection in Oncology Phase I Combination Studies—✦Yiyun Zhang, Novartis; Nigel Yateman, Novartis; Fang Xiang, Novartis; Lan Yi, Novartis; Kapildeb Sen, Novartis; Beat Neuenschwander, Novartis

2:20 p.m. Considering Delayed Treatment Effect in Trial Designs with Survival Endpoints—✦Kaushal Mishra, Novartis Oncology Pharmaceuticals; Kalyanee Viraswami Appanna, Novartis Pharmaceuticals

2:35 p.m. Application of Bayesian Analyzes to Doubly-Randomized Delayed-Start, Matched Control Designs to Demonstrate Disease Modification—✦Ibrahim Turkoz, Janssen Research and Development, LLC; Marcus Sobel, Temple Universisity; Larry Alphs, Janssen Scientific Affairs, LLC

2:50 p.m. A Strategy for the Design and Analysis of Bridging Studies—✦Eric Holmgren, Beigene

3:05 p.m. Bayesian Isotonic Optimal Dose Design for Phase I/II Clinical Trials with Ordered Groups—✦Xiaoqiang Xue,

3:20 p.m. Evaluation of Regional Efficacy Equivalence in Developing Biosimilars—✦Ryuji Uozumi, Kyoto University Graduate School of Medicine; Shinjo Yada, A2 Healthcare Corporation

3:35 p.m. Statistical Methodologies to Detect Ineffective Regional Treatment Effect in a Multiregional Trial—✦Hsiao-Hui Tsou, National Health Research Institutes; Yu-Chieh Cheng, National Health Research Institutes; Chin-Fu Hsiao, National Health Research Institutes

248 CC-West 119

● Statistical Issues Specific the Therapeutic Areas- 2—Contributed

Biopharmaceutical Section

Chair(s): Jie Li Jie Li,

2:05 p.m. A Meta-Analysis to Indirectly Compare Experimental Drugs Across Multiple Indications Using a Bayesian Hierarchical Model—✦Ji Lin, Eli Lilly; Jingyi Liu, Eli Lilly; Zachary Thomas, Eli Lilly; Yumin Zhao, Eli Lilly & Co.; Mythili Koneru, Eli Lilly

2:20 p.m. Sample Size Determination Under Non-Proportional Hazards—✦Zhaowei Hua, Takeda Pharmaceuticals International Co.; Miao Yang, Oregon State University; Saran Vardhanabhuti, Takeda Pharmaceuticals

2:35 p.m. Are Tumor Size Changes Predictive of Survival for Immunotherapy Trials?—✦Meihua Wang, Merck & Co.; Thomas Jemielita, Merck & Co.; Cong Chen, Merck & Co.; Chen Hu, Johns Hopkins University

2:50 p.m. Does Phase 2 PFS or ORR Predict Phase 3 OS?—✦Russell Reeve, Quintiles

3:05 p.m. Innovative Approaches to Deal with Delayed Treatment Effect, Cure Fraction and Treatment Switching in Time-To-Event Data in Cancer Immuno-Therapies—✦Carl Di Casoli, Halozyme Therapeutics; Alessandro Previtali, Celgene; Jonathan Jaeger, Celgene; Marie-Laure Casaebaig, Celgene

3:20 p.m. A Simulation-Based Comparison Study About Different Methods Adjusting for the Bias of Treatment Non-Adherence—✦Jia Jia, AbbVie; Ying Zhang, Penn State College of Medicine; Jane Qian, Abbvie

3:35 p.m. Predictive Probability on Interim Analysis of Time-To-Event Endpoints with Delayed Treatment Effects—✦Matt Rosales, Astellas; Kentaro Takeda, Astellas Pharma Global Development, Inc.

249 CC-West 221

Bayesian Methods for Social and Human Data—Contributed

Section on Bayesian Statistical Science

Chair(s): Sameer Deshpande, University of Pennsylvania, Wharton Statistics

2:05 p.m. Spatio-Temporal Modeling of the US College Crime Data—✦Fatih Gezer, University of Leeds; Xiaoke Zhang, George Washington University

2:20 p.m. Bayesian Disaggregation of Spatio-Temporal Survey-Based Estimates: An Application to the American Community Survey—✦Marco H. Benedetti, University of Michigan; Veronica J. Berrocal, University of Michigan

2:35 p.m. Bayesian Network Regularized Regression for Modeling Urban Crime Occurrences—✦Elizabeth Mary Upton, Boston University; Luis Carvalho, Boston University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

2:50 p.m. A Bayesian Multilevel Dirichlet Regression Model for Adolescent Activity Pattern Data—✦Kori Khan, Ohio State; Catherine Calder, The Ohio State University; Anna Smith, Columbia University; Christopher Browning, The Ohio State University

3:05 p.m. A Hierarchical Bayesian Cognitive Diagnostic Factor Model for Learning Trajectories—✦Albert Man, UIUC; Steven Culpepper, University of Illinois at Urbana-Champaign

3:20 p.m. Bayesian Modeling for Outlier Detection in Longitudinal Biometric Data—✦Ghadeer Mahdi, University of Arkansas, Fayetteville; Avishek Chakraborty, University of Arkansas, Fayetteville; Mallik Rettiganti, UAMS, USA; Anthony Goudie, Arkansas Center for Health improvement, USA

3:35 p.m. A Bayesian Nonparametric Method for Zero-Inflated Data with Applications to Medical Costs—✦Arman Oganisian, University of Pennsylvania; Nandita Mitra, University of Pennsylvania; Jason Roy, University of Pennsylvania

MONDAY

250 CC-West 111

Topics in Statistical Learning—Contributed

Section on Statistical Learning and Data Science

Chair(s): Yutao Liu, Columbia University

2:05 p.m. The Relationship Between Gini Terminology and the Receiver Operating Characteristic (ROC) Curve—✦Edna Schechtman, Ben Gurion Univ; Gideon Schechtman, Weizmann Institute

2:20 p.m. Forecasting Disease Incidence—✦Noah Kochanski, Hope College; Yew-Meng Koh, Hope College

2:35 p.m. Structure Learning for Phylogenetic Tree with Quantitative Characters—✦Chaoyu Yu, ; Mathias Drton, University of Washington

2:50 p.m. Greedy Active Learning Algorithm for Logistic Regression Models—✦Ray-Bing Chen, National Cheng Kung University, Taiwan; Hsiang-Ling Hsu, National University of Kaohsiung; Yuan-Chin Ivan Chang, Academia Sinica

3:05 p.m. Multilayer Tensor Factorization with Applications to Recommender Systems—✦Xuan Bi, ; Annie Qu, University of Illinois at Urbana-Champaign; Xiaotong Shen, University of Minnesota

3:20 p.m. Iterative Quantile Nearest-Neighbors—✦Karsten Maurer, Miami University

3:35 p.m. Prediction Using Machine Learning Algorithms by Small Sample Size Data—✦Yan Wang, Field School of Public Health, UCLA; Honghu Liu, UCLA; Jian L Zhang, Kaiser Permanente

251 CC-East 14

Spatial and Spatiotemporal Modeling in Climate and Meteorology—Contributed

Section on Statistics and the Environment

Chair(s): Joshua Hewitt, Colorado State University

2:05 p.m. Bias Correction of Arctic Sea Ice Contours—✦Hannah Director, University of Washington; Adrian Raftery, University of Washington; Cecilia Bitz, University of Washington

2:20 p.m. Spatial Modeling of Rainfall Accumulated Over Short Periods of Time—✦Victor De Oliveira, The University of Texas at San Antonio; Binbin Wang, The University of Texas at San Antonio; Eric V. Slud, University of Maryland--College Park

2:35 p.m. Multivariate Functional Quantile Envelopes with Application to Radiosonde Wind Data—✦Gaurav Agarwal, King Abdullah University of Science and Technology (KAUST); Ying Sun, KAUST

2:50 p.m. Interval-Valued Kriging and Application in Climate Related Predictions—✦Brennan Bean, Utah State University; Yan Sun, Utah State University

3:05 p.m. Latent Variable Modeling for Extracting Consensus Estimates of Precipitation in High Mountain Asia—✦William F. Christensen, Brigham Young University; Shane Reese, Brigham Young University; Summer Rupper, University of Utah; Michael F. Christensen, Brigham Young University; Brenton Mabey, Brigham Young University; Katie Larson, Brigham Young University

3:20 p.m. Spatio-Temporal Models for Probabilistic Wind Vector Forecasting in Saudi Arabia—✦Amanda Lenzi, King Abdullah University of Science and Technology; Marc G Genton, King Abdullah University of Science and Technology

3:35 p.m. Space-Time Characterization of Sub-Grid Air-Sea Flux Variability—✦Julie Bessac, Argonne National Laboratory; Hannah Christensen , National Center for Atmospheric Research ; Adam Monahan, University of Victoria; Aneesh Subramanian, Scripps Institution of Oceanography; Nils Weitzel, Meteorological Institute of the University of Bonn

252 CC-West 112

Replicate Weights and Variance Estimation—Contributed

Survey Research Methods Section

Chair(s): Christine Wells, UCLA

2:05 p.m. Why Weight, Replicate Now! The Use of Replicate Weights for Complex Survey Data Analysis in SPSS—✦Kelly Lin, Marketing Systems Group; Jeffrey S. Bareham, Marketing Systems Group; Ashley Hyon, Marketing Systems Group

2:20 p.m. Population Based Case Control Studies with Frequency Matching: Capturing a Further Component of Variability—✦Sabrina Zhang, Westat; Ralph DiGaetano, Westat; Jane Li, Westat

2:35 p.m. Jackknife and Other Replication Methods with a Reduced Number of Replicates—✦Stephen Ash, US Census Bureau

2:50 p.m. Strategies for Minimizing Unequal Weighting Effects in Two-Phase Sampling for Nonresponse—✦Dan Liao, RTI International; Paul Biemer, RTI Internatinoal; Darryl Cooney, RTI International

3:05 p.m. Variance Estimation Under Imputation Using the Rescaling Bootstrap—✦Christian Bruch, University of Mannheim

3:20 p.m. Estimates of Variance of HIV Incidence for Population-Based Surveys—✦Jean Opsomer, Westat; Ismael Flores Cervantes, Westat; Anindya De, U.S. Centers for Disease Control and Prevention; Rommel Bain, U.S. Centers for Disease Control and Prevention; Paul Stupp, U.S. Centers for Disease Control and Prevention

3:35 p.m. On Generalized Variance Functions for Sample Means and Medians—✦Justin McIllece, Bureau of Labor Statistics

Contributed Poster Presentations 2:00 p.m.—3:50 p.m.

253 CC- West Hall B

Contributed Poster Presentations: Section on Statistical Computing—Contributed

Section on Statistical Computing

Chair(s): Paul McNicholas, McMaster University

Section on Statistical Computing

1 **Stratified Over Representative K-Folds Cross-Validation**—✦William Franz Lamberti, George Mason University

2 **A "divide and Conquer" Approach to Estimating Optimal Penalty Parameter in Functional Tikhonov-Regularized Regression Model via Leave-One-Out Cross-Validation**—✦Yichuan Wang, UC Davis; Wolfgang Polonik, University of California, Davis; Alexander Aue, University of California, Davis

3 **Scdensity: An R Package for Shape-Constrained Kernel Density Estimation**—✦Mark Wolters, Shanghai Center for Mathematical Sciences

4 **Statistical Techniques to Improve Random Projections and Other Similar Algorithms**—✦Keegan Kang, Singapore University Of Technology And Design; Weipin Wong, Singapore University Of Technology and Design; Haikal Yeo, Independent

5 **Robust Algorithms for Partial Least Squares Generalized Linear Regression**—✦Frederic Bertrand, University of Strasbourg; Myriam Maumy-Bertrand, University of Strasbourg

6 **Number of Components for Partial Least Squares Generalized Linear Models with Missing Data**—✦Myriam Maumy-Bertrand, University of Strasbourg; Frederic Bertrand, University of Strasbourg

7 **Caveats on Data Cloning**—✦Brian Zaharatos

Uncertainty Quantification for Complex Systems Interest Group

8 **A Probabilistic Tool for Assessing the Laplace Approximation: Review, Optimization, and GPU Implementation**—✦Shaun McDonald, Simon Fraser University; David Campbell, Simon Fraser University

Section on Statistical Computing

9 **Mini-Batch Tempered MCMC**—✦Dangna Li, Stanford University; Wing Hung Wong, Stanford University

10 **The Impact of the Bias in the Logistic Regression**—✦Tiago M. Magalhaes, Federal University of Juiz de Fora

11 **Estimation of Space-Time ARMAX Model**—✦Dongping Fang, Zurich

12 **Combining Rules for F-Tests from Imputed Data**—✦Ashok Chaurasia

13 **Conducting Meta-Analysis Under the Framework of Confidence Distribution Using Gmeta Package in R**—✦Jerry Cheng, Rutgers University; Minge Xie, Rutgers University; Guang Yang, WalmartLab

14 **Continuous Tempering Through Path Sampling**—✦Yuling Yao, Columbia Univ; Andrew Gelman, Columbia Universit

15 **A Doubly Distributed and Integrated Method of Moments for High-Dimensional Correlated Data Analysis**—✦Emily Charlotte Hector, University of Michigan; Peter X.-K. Song, University of Michigan

16 **One-Stage Data-Driven BH Procedure**—✦Nasrine Bendjilali, Rowan University; Boualem Bendjilali, RVCC; Wei-Min Huang, Lehigh University

17 **Widespread (Unintentional) Corruption of Cross Validation Techniques for Prediction Models on Imputed Data Sets**—✦Milo Page, NC State University/JMP; Alyson Wilson, North Carolina State University; Chris Gotwalt, JMP

18 **Bayesian Phylogenetic Inference via Particle Gibbs Sampler with Ancestor Sampling**—✦Shijia Wang, Simon Fraser University; Liangliang Wang, Simon Fraser University

19 **Sequential Modeling of Spatial Temporal Image Data**—✦Shufei Ge, Simon Fraser University; Shijia Wang, Simon Fraser University; Liangliang Wang, Simon Fraser University; Farouk Nathoo, University of Victoria

20 **Package MTEXO for Testing the Presence of Outliers in Exponential Samples**—✦Chien-Tai Lin, Tamkang University

21 SurvBoost: An R Package for High-Dimensional Variable Selection in the Stratified Proportional Hazards Model via Gradient Boosting—✦Emily Morris, University of Michigan;

Jian Kang, University of Michigan; Zhi He, University of Michigan; Yanming Li, University of Michigan; Yi Li, University of Michigan

22 **Non-Stationary Covariance Estimation Using the Stochastic Score Approximation for Large Spatial Data**—✦Amanda Muyskens, North Carolina State University; Joseph Guinness, NC State University; Montserrat Fuentes, Virginia Commonwealth University

23 **Feature Selection and Classification Using Sparse Envelope Model**—✦Minji Lee, University of Florida; Zhihua Su, University of Florida

24 **An Efficient Algorithm for Outlier Detection in Linear Mixed Model**—✦Tzu-Ying Liu, University of Michigan; Hui Jiang, University of Michigan

25 **Estimation of Individualized Decision Rules Based on an Optimized Covariate-Dependent Equivalent of Random Outcomes**—✦Zhengling Qi, ; Ying Cui, University of Southern California; Yufeng Liu, University of North Carolina at Chapel Hill; Jong-Shi Pang, University of Southern California

26 **EAinference: An R Package for Simulation-Based Inference via Estimator Augmentation**—✦Seunghyun Min, UCLA; Qing Zhou, UCLA

27 **A Normalizing Function Emulation Approach for Doubly Intractable Distributions**—✦Jaewoo Park, Pennsylvania State University; Murali Haran, Penn State University

28 **SOLID: Sequential Optimization of Locally Important Dimensions**—✦Munir Winkel, North Carolina State University; Brian Reich, North Carolina State University; Jonathan Stallings, North Carolina State University; Curtis Storlie, Mayo Clinic

29 **Hierarchical-Block Conditioning Approximations for High-Dimensional Multivariate Normal Probabilities**—✦Jian Cao, King Abdullah University of Science and Technology; Marc G Genton, King Abdullah University of Science and Technology; David E Keyes, King Abdullah University of Science and Technology; George Turkiyyah, King Abdullah University of Science and Technology

30 **A Computational, Data-Driven Approach to Game Theory**—✦Michael Alexander Smith, Purdue University; Mark Daniel Ward, Purdue University; Deidra Coleman, Wofford College; Doug G Crabill, Purdue University; Jamylle Carter, Diablo College; Jennifer Travis, Lone Star College; Jack Henry Good, Purdue University; Bret Benesh, College of Saint Benedict and Saint John's University

254 CC- West Hall B

Contributed Poster Presentations: Section on Statistical Learning and Data Science—Contributed

Section on Statistical Learning and Data Science

Chair(s): Paul McNicholas, McMaster University

Section on Statistical Learning and Data Science

31 **Computing Mean Partition and Assessing Uncertainty for Clustering Analysis**—✦Beomseok Seo, Penn State University; Lin Lin, The Pennsylvania State University; Jia Li, Penn State University

32 **A Generalized Fellegi-Sunter Framework for Unsupervised Collective Record Linkage in Clustered Relational Data with Applications to Electronic Health Records**—✦Nicole Solomon, Duke University Medical Center; Sean M O'Brien, Duke University Medical Center; Joseph Lucas, Duke University

33 **Predictive Big Data Analytics in Mental Disorders Using the UK Biobank**—✦Yiwang Zhou, University of Michigan; Ivo Dinov, Statistics Online Computational Resource, University of Michigan; Simeone Marino, Statistics Online Computational Resource, University of Michigan

34 **Sparse Variable Selection in Kernel Discriminant Analysis via Optimal Scoring**—✦Alexander Lapanowski, Texas A&M; Irina Gaynanova, Texas A&M University

35 An Application of Clustering Method on EHR Data Phenotyping and Prediction—✦Shu Wang, University of Pittsburgh; Joyce Chung-Chou H Chang, University of Pittsburgh; Christopher W. Seymour, University of Pittsburgh; Jason Kennedy, University of Pittsburgh; Zhongying Xu, University of Pittsburgh

36 **An Algorithm to Compare Patterns and Its Application on Shoe Out-Sole Impressions**—✦Soyoung Park, Iowa State University / CSAFE; Alicia Carriquiry, Iowa State University

37 **Predicting Hospital Readmission for Diabetes Patients by Classical and Machine Learning Approaches**—✦Gabrielle LaRosa, University of Pittsburgh; Chathurangi Pathiravsan, Southern Illinois University Carbondale; Rajapaksha Wasala M Anusha Madushani, University of Florida

38 **The Classification of Stellar Systems Through Singular Spectrum Analysis**—✦Kevin Matheson, Western Washington University; Kevin Covey, Western Washington University; Kimihiro Noguchi, Western Washington University

39 **Machine Learning with Ensemble Feature Selections for Mass Spectrometry Data in Cancer Study**—✦Yulan Liang, University of Maryland Baltimore; Amin Gharipour, Griffith University; Arpad Kelemen, University of Maryland Baltimore; Adam Kelemen, University of Maryland College Park; Hui Zhang, Johns Hopkins Medical Institutions

40 **Structured Mixture of Linear Mappings in High Dimension**—✦Chun-Chen Tu, University of Michigan; Florence Forbes, INRIA; Benjamin Lemasson, Universit ¥e Grenoble; Naisyin Wang, U of Michigan

41 **Approximate Leveraging Methods to Select a Predictive Regression Model for Big Data**—✦Le Chang

42 **Image Segmentation for Maize Plants Using Machine Learning**—✦Jason Adams

43 **Clustering Network Tree Data from Respondent-Driven Sampling**—✦Shuaimin Kang, University of Massachusetts Amherst; Krista J. Gile, University of Massachusetts; Pedro Mateu-Gelabert, National Development and Research Institutes, Inc.; Honoria Guarino, National Development and Research Institutes, Inc.

44 **A Generalization of Convolutional Neural Networks to Graph-Structured Data**—✦Yotam Hechtlinger, Carnegie Mellon Univ

45 **Empirical Evaluation for Platt Scaling and Isotonic Regression**—✦Weihua Shi, SAS Institute, Inc.

46 **Latent Association Mining in Binary Data**—✦Kelly Bodwin, California Polytechnic State University; Andrew B Nobel, University of North Carolina at Chapel Hill; Kai Zhang, University of North Carolina at Chapel Hill; Suman Chakraborty, The University of North Carolina at Chapel Hill

47 **Graphical Model for Continuous Longitudinal Data**—✦Lei Wang, The University of Queensland

48 **The Application of Elastic Net with Fused Term in Change Point Detection via Coordinate Descent**—✦Zhi Wang, University of Alabama

49 **Global Sensitivity Analysis from Given Data : Elementary Effect Approach**—✦Jong hyun Kim, Hanyang University; Dae il Jang, Hanyang University; Kyung joon Cha, Hanyang University

50 **Per-Gene Normalization Method (UQ-PgQ2) Improves the Specificity for the Analysis of Differential Gene Expression in RNA-Seq Data**—✦Xiaohong Li, University of Louisville; Nigel G.F. Cooper, University of Louisville; Dongfeng Wu, University of Louisville; Eric C. Rouchka, University of Louisville; Shesh N. Rai, University of Louisville

51 **Multivariate Zero-Inflated Poisson Regression**—✦Yang Wang, University of Alabama

52 **Sound and Solid Selection of Covariates - a Simulation Study**—✦Kira Dynnes Svendsen, Technical University of Denmark; Nina Munkholt Jakobsen, Technical University of Denmark

53 **Machine-Learning Approach to Defining Covariates to Increase Study Power in ALS Clinical Trials and Other Multifactorial Heterogeneous Disease Areas**—✦Danielle Beaulieu, Origent Data Sciences; Albert Taylor, Origent Data Sciences; Samad Jahandideh, Origent Data Sciences; David Ennist, Origent Data Sciences; Andrew Conklin, Origent Data Sciences; Mike Keymer, Origent Data Sciences

54 **Functional Graphical Model Classification**—✦Peide Li

55 **Variation of Functional Connectome Topology and Its Implications for Attention**—✦Kelson Zawack, Yale University

56 **Model-Based Clustering of Time-Dependent Categorical Sequence**—✦Yingying Zhang, The University of Alabama; Volodymyr Melnykov, University of Alabama

57 **Learning an Interpretable Behavioral Intervention Policy Using MHealth Data**—✦Xinyu Hu, Columbia University; Min Qian, Columbia University; Ying Kuen Ken Cheung, Columbia University

58 **Analyzing Temporal and Spatial Trends in Weather Forecast**—✦Manasi Sheth, California State University; Mahalaxmi Gundreddy, California State University East Bay; Vivek Shah, Applied Materials, Inc. ; Pritam Barlota, California State University East Bay; Eric Suess, CSU East Bay

59 **Adversarial Clustering: a Grid Based Clustering Algorithm Against Active Adversaries**—✦Wutao Wei, Purdue University; Bowei Xi, Purdue University

60 **Classification Accuracy of Unsupervised Learning Methods with Discrete and Mixture Distributed Indicators: a Monte Carlo Simulation Study**—✦Chi Chang,

61 **Covariate-Adjusted Tensor Classification in High-Dimensions**—✦Yuqing Pan, Florida State University; Qing Mai, Florida State University; Xin Zhang, Florida State University

255 CC- West Hall B

Contributed Poster Presentations: Section for Statistical Programmers and Analysts—Contributed

Section for Statistical Programmers and Analysts

Chair(s): Paul McNicholas, McMaster University

Section for Statistical Programmers and Analysts

62 **A Pair Correlation Function for Non-Stationary Spatial Point Processes Which Depends on Covariates**—✦Zhiji Tang, Florida State University

63 **Using the SAS Hash Object for Sample Allocation Procedures for Large Data Sets/Big Data**—✦Julia Batishev, National Opinion Research Center (NORC); Michael Yang, NORC

64 **The Discussion Statistical Methods on Meta-Analysis Are Including Parameters Estimation and Hypothesis Test in 2x2 Table**—✦Jin-Hua Chen,

65 **Robust Dose-Level Designs for Binary Responses in Environmental Risk Assessment**—✦Denis Kwesiga, Bridgewater State University; Yu Wanchunzi, Bridgewater State University

Section on Statistical Learning and Data Science

66 **A Study of Nonparametric Density Estimation in NaÏve Bayes Classifiers**—✦Han Zhang, The University of Alabama

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Contributed Poster Presentations: Section on Bayesian Statistical Science—Contributed

Section on Bayesian Statistical Science

Chair(s): Paul McNicholas, McMaster University

Section on Bayesian Statistical Science

67 **Comparison of Variable Selection Approaches in Predictive Modeling**—✦Jing Zhang, Miami University; Thomas Fisher, Miami University; Qi He, Miami University

68 **Bayesian Applications in Brand Lift**—✦Tim Hesterberg, Google; Jessica Hwang, Google; Shyue-Ming Loh, Google Inc.; Rachel Fan, Google

69 **Incomplete Gamma Distribution: Properties and Applications Toward Bayesian Hierarchical Model**—✦Se Yoon Lee, Texas A & M University; Jung Woong Kim, Ohio State University; Ji Yoon Lee, Kyobo Life Insurance Co.

70 **Graph-Based Mixture Model: a Bayesian Approach to Combine Clustering and Hypothesis Testing**—✦Tien Vo, University of Wisconsin - Madison; Vamsi Ithapu, University of Wisconsin - Madison; Vikas Singh, University of Wisconsin - Madison; Michael Newton, University of Wisconsin at Madison

71 **Counting Maternal Deaths? You Better Bayes It! a Systematic Assessment of Underreporting and Misclassification in Registration of Maternal Deaths in High and Middle Income Countrie**—✦Emily Peterson, University of Massachusetts Amherst; Leontine Alkema, University of Massachusetts Amherst

72 **Bayesian Convex Aggregation for Model Averaging**—✦Peng Zhao, Florida State University; Yun Yang, Florida State University

73 **An Autonomous Confidence Set Is a Conservative Credible Set**—✦Sitaram Vangala, UCLA Health System; Robert Weiss, UCLA

74 **Bayesian Inference in High-Dimensional Linear Regression Using an Empirical Correlation-Adaptive Prior**—✦Chang Liu, North Carolina State University

75 **Comparing Behavioral Dynamics Between Groups of Mice Using Hierarchical Hidden Semi Markov Models**—✦Emmeke Aarts, Utrecht University

76 **Bayesian Variable Selection of Stochastic Volatility Models in Financial Time Series**—✦Feng Chi Liu

77 **Bayesian and Unsupervised Machine Learning Machines for Jazz Music Analysis**—✦Qiuyi Wu, ASA; Ernest Fokoue, ASA

78 **Bayesian Functional Quantile Regression**—✦Yusha Liu, Rice University; Jeffrey S Morris, The University of Texas M.D. Anderson Cancer Center; Meng Li, Rice University

Section on Statistical Computing

79 **Copula Based Approaches for Joint Modeling of Clustered Zero-Inflated Binary and Semi-Continuous Data.**—✦John Kwagyan, Howard University; Victor Apprey, Howard University; Haifa Alqahtani, Howard University

Section on Bayesian Statistical Science

80 **Bayesian Sparse Regression in the Presence of Nuisance Parameters**—✦Seonghyun Jeong, North Carolina State University; Subhashis Ghoshal, North Carolina State University

Biometrics Section

81 Median Regression for Clustered, Interval Censored Data—✦Piyali Basak, Florida State University; STUART LIPSITZ, HARVARD MEDICAL SCHOOL; Debajyoti Sinha, Florida State University

Section on Bayesian Statistical Science

82 **Simultaneous Bayesian Model Search and Change-Points Detection for Non-Stationary Oscillatory Processes**—✦Beniamino Hadj-Amar, The University of Warwick; Barbel Finkenstadt, The University of Warwick

83 **A Bayesian Hierarchical Multivariate Poisson-Lognormal Model to Estimate Age- and Cause-Specific Child Mortality in Data-Scarce Countries**—✦Austin Edward Schumacher, University of Washington; Tyler McCormick and Adrian Raftery, University of Washington

84 **Robust Inference for Classification with Noisy Labels: A Bayesian Approach**—✦Paul Byrnes, University of Liverpool UK; Francisco Alejandro DiazDelaO, University of Liverpool UK

257 CC- West Hall B

SPEED: Longitudinal/Correlated Data—Contributed

Biometrics Section, Health Policy Statistics Section, Section on Statistics in Epidemiology, ENAR

Chair(s): Paul McNicholas, McMaster University

Biometrics Section

1 **Effect of Longitudinal Intracranial Pressure on Ordinal Glasgow Outcome Scale Using a Joint Model Approach**—✦Maria Laura Rubin, The University of Texas MD Anderson Cancer Center; Wenyaw Chan, University of Texas Health Science Center at Houston; Jose-Miguel Yamal, The University of Texas Health Science Center at Houston; Claudia Sue Robertson, Baylor College of Medicine

2 **Mixed Latent Markov Models for Longitudinal Multiple Diagnostics Data with an Application to Salmonella in Malawi**—✦Marc Henrion, Malawi Liverpool Wellcome Trust Clinical Research Programme; Angeziwa Chirambo, Malawi Liverpool Wellcome Trust Clinical Research Programme; Tonney C. Nyirenda, College of Medicine; Melita Gordon, Malawi Liverpool Wellcome Trust Clinical Research Programme

3 **Modeling a Longitudinal Covariate as Continuous Time Markov Chain in a Survival Framework**—✦Ting-Yu Chen, The University of Texas Health Science Center at Houston; Wenyaw Chan, University of Texas Health Science Center at Houston; Qiuling Shi, The University of Texas MD Anderson Cancer Center; Xin Shelley Wang, The University of Texas MD Anderson Cancer Center; Charles Cleeland, The University of Texas MD Anderson Cancer Center

Health Policy Statistics Section

4 **Horizontal and Vertical Effects in a Logistic Regression Model**—✦Diana Gonzalez, Arizona State University

Biometrics Section

5 An R2 Statistic for Covariance Model Selection in the Linear Mixed Model—✦Byron Jaeger, University of Alabama at Birmingham; Lloyd Edwards, University of Alabama at Birmingham; Matthew Gurka, University of Florida

Health Policy Statistics Section

6 **Using Multitrajectory Modeling in Latent Class Growth Analysis to Identify Multi-Symptom Trajectories Over Time**—✦Wei Pan, Duke University; Mary C Hooke, University of Minnesota School of Nursing; Cheryl Rodgers, Duke University School of Nursing; Marilyn Hockenberry, Duke University School of Nursing

Biometrics Section

7 **Propensity Scores to Reduce Bias Due to Treatment Compliance Change Over Time in Longitudinal Randomized Clinical Trials**—✦Huaqing Zhao, Temple University; Susan G Fisher, Temple University School of Medicine; Bethany Joy Foster, McGill University

8 **A Novel Robust Approach for Analysis of Longitudinal Data**—✦Yuexia Zhang, Fudan University; Guoyou Qin, Fudan University; Zhongyi Zhu, Fudan University

Section on Statistics in Epidemiology

9 **Comparisons of Modeling Methods on Longitudinal and Survival Data: Identifying Use of Repeat Biomarker Measurements to Predict Time-To-Event Outcome in Cancer Research**—✦Meng Ru, Icahn School of Medicine at Mount Sinai; Erin Moshier, Icahn School of Medicine at Mount Sinai; Madhu Mazumdar, Icahn School of Medicine at Mount Sinai

Biometrics Section

10 **Sampling Studies for Longitudinal Functional Data Analysis**—✦Toni Jassel, ; Andrada E Ivanescu, Montclair State University

11 **Power and Sample Size Requirements for GEE Analyzes of Cluster Randomized Crossover Trials**—✦Fan Li, Duke University; Andrew Forbes, Monash University; Elizabeth L. Turner, Duke Global Health Institutes; John S. Preisser, University of North Carolina at Chapel Hill

12 **Evaluating Quantile Estimation Methods for Setting Normal Values for Longitudinal Measures**—✦Jeffrey Slezak, Kaiser Permanente; Steven J Jacobsen, Kaiser Permanente; Stephanie Reading, Kaiser Permanente

Health Policy Statistics Section

13 **Survival Analysis Using Intensive Longitudinal Data and Irregular Moments of Reporting**—✦Trent Lalonde, Applied Statistics Program, University of Northern Colorado; Kristina T Phillips, University of Northern Colorado; Michael M Phillips, University of Northern Colorado

ENAR

14 **Coherence-Based Time Series Clustering for Brain Connectivity Visualization**—✦Carolina Euan Campos, KAUST; Ying Sun, KAUST; Hernando Ombao, King Abdullah University of Science and Technology

Biometrics Section

15 **Interrupted Time Series Analysis to Evaluate the Effect of a Multicenter Collaborative Effort to Improve Care for Adult Intensive Care Patients**—✦Alai Tan, Ohio State University College of Nursing; Michele C. Balas, Ohio State University College of Nursing

16 **A Comparison of Modeling Approaches for Stepped-Wedge Cluster Randomized Trials That Include Multilevel Clustering, Confounding by Time, and Effect Modification**—✦Lance Ford, University of Oklahoma Health Sciences Center; Julie A Stoner, University of Oklahoma Health Sciences Center; Daniel Zhao, OU Health Sciences Center; Tabitha Garwe, University of Oklahoma Health Sciences Center; Ann Chou, University of Oklahoma Health Sciences Center; Daniel Duffy, University of Oklahoma-Tulsa

17 **Unified Mediation Analysis Approach to Complex Data of Mixed Types via Copula Models**—✦Wei Hao, University of Michigan; Peter X.-K. Song, University of Michigan

18 **Joint Modeling of Mean, Variance, Skewness, and Kurtosis**—✦Katherine E Irimata, Arizona State University; Jeffrey R Wilson, Arizona State University

19 **Vine Copula Models for Family Data Analysis**—✦Yihao Deng, Purdue University Fort Wayne; N. Rao Chaganty, Old Dominion University

20 **The Implementation of Moderated T-Tests in Linear Mixed-Effects Models**—✦Lianbo Yu, Ohio State University; Jianying Zhang, Ohio State University; Guy Brock, Ohio State University College of Medicine; Soledad Fernandez, The Ohio State University

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SPEED: Causal Inference and Related Methodology—Contributed

Section on Statistics in Epidemiology

Chair(s): Paul McNicholas, McMaster University

Section on Statistics in Epidemiology

21 **Estimating Average Causal Treatment Effects Utilizing Fractional Imputation When Confounders Are Subject to Missingness**—✦Nathaniel Corder, North Carolina State University; Shu Yang, North Carolina State University

22 **Methods Used to Account for Neighbourhood Self-Selection in Studies of Neighbourhood Effects on Physical Activity and Nutrition: a Systematic Review**—✦Karen Elaine Lamb, Murdoch Children's Research Institute, Royal Children's Hospital; Lukar Thornton, Deakin University; Tania King, University of Melbourne; Kylie Ball, Deakin University; Rebecca Bentley, University of Melbourne; Neil Coffee, University of Canberra; Mark Daniel, University of Canberra

23 **A Comparison of Methods to Estimate Survival Curves Under Time-Varying Treatments**—✦Lucia C. Petito, Harvard T.H. Chan School of Public Health; Sonja A. Swanson, Erasmus Medical Center; Miguel Hernan, Harvard School of Public Health

24 **Sufficient Cause Interaction for Ordinal and Categorical Outcomes**—✦Jaffer Zaidi, ; Tyler VanderWeele, Harvard University

25 **Combining Inverse Probability Weighting and Multiple Imputation to Adjust for Selection Bias in Electronic Health Records-Based Research**—✦Tanayott Thaweethai, Harvard T.H. Chan School of Public Health; Sebastien Haneuse, Harvard T.H. Chan School of Public Health; David Arterburn, Kaiser Permanente Washington Health Research Institute

26 **Efficient Design and Analysis of Cluster Randomized Trials**—✦Hengshi Yu, University of Michigan, Ann Arbor; Fan Li, Duke University; John A. Gallis, Duke University; Elizabeth L. Turner, Duke Global Health Institutes

MONDAY

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

27 **Maximum Likelihood Estimation of the K Parameter in the Poly-K Trend Test for Time-To-Event Data**—✦Anna Korpak, VA ERIC; Barbara McKnight, University of Washington

28 **A Bayesian Nonparametric Approach to Estimate Causal Effects of Mediation in the Presence of Nonignorable Missingness**—✦Dandan Xu, US Food and Drug Administration; Michael Daniels, University of Florida

29 **Multivariate Mediation Analysis with a Multi-Categorical Exposure Variable: An Application to Explore Racial and Ethnic Disparities in Obesity**—✦Qingzhao Yu, Louisiana State University Health Sciences Ctr; Lin Zhu, Louisiana State University Health Sciences Ctr; Bin Li, Louisiana State University

30 **Balancing Scores Weighing Methods and Sensitivity Analysis to Unfold Health Disparity**—✦Chen-Pin Wang, University of Texas Health San Antonio

31 **Power Evaluation for Covariate Balancing Propensity Score Methods**—✦Byeong Yeob Choi, University of Texas Health Science Center at San Antonio; Chen-Pin Wang, University of Texas Health San Antonio; Joel Michalek, University of Texas Health Science Center at San Antonio; Jonathan Gelfond, University of Texas Health San Antonio

32 **Embedding Observational Studies into Hypothetical Fractional-Factorial Experiments**—✦Nicole Pashley, Harvard University; Marie-Abele Bind, Harvard University

33 **Using Validation Data to Adjust the Inverse Probability Weighting Treatment Effect Estimator for Misclassified Treatment**—✦Danielle Braun, Harvard T. H. Chan School of Public Health; Corwin Zigler, Harvard T.H. Chan School of Public Health; Francesca Dominici, Harvard T. H. Chan School of Public Health; Malka Gorfine, Tel Aviv University

34 **Leveraging Multiple Study Designs and Statistical Methods to Evaluate Comparative Effectiveness of Asthma Medications**—✦Tebeb Gebretsadik, Vanderbilt University Medical Center; Pingsheng Wu, Vanderbilt University; Rees L Lee, U. S. Navy; Amber M Evans, Health ResearchTX LLC; Tan Ding, Vanderbilt University Medical Center; Nicholas M Sicignano, Health Research Tx ; Ann Wu, Harvard Medical School; Carlos Iribarren, Kaiser Permanente Division of Research; Butler Melissa, Kaiser Permanente; Chang Yu, Vanderbilt University Medical Center; William Dupont, Vanderbilt University Medical Center; Christina Fox, Health ResearchTx; Tina V Hartert, Vanderbilt University Medical Center

35 **Instrumental Variable Estimators of Exposure Effects for Competing Risks Data**—✦Sai Dharmarajan, University of Michigan-School of Public Health; Douglas E. Schaubel, University of Michigan, Ann Arbor

36 **Gaussian Process Propensity Scores for Multiple Treatment Regimes**—✦Brian Vegetabile, UC Irvine; Daniel L. Gillen, University of California, Irvine; Hal Stern, University of California, Irvine

37 **Accounting for Variation in Instrumental Effect Estimates Leads to More Precise Estimates of Causal Effects in MR Studies**—✦Richard Barfield, Fred Hutchinson Cancer Research Center; Li Hsu, Fred Hutchinson Cancer Research Center, USA

38 **Estimating Causal Effect by Difference in Difference via Random Forest**—✦Tomoshige Nakamura, Graduate School of Science and Technology, Keio University; Mihoko Minami, Keio University

39 **Assessing Therapeutic Equivalence of Brand and Generic Drugs Using Observational Data**—✦Lamar Hunt, Johns Hopkins Bloomberg SPH & OptumLabs Visiting Fellows; Daniel Scharfstein, Johns Hopkins University; Irene Murimi, Johns Hopkins Bloomberg SPH & OptumLabs Visiting Fellows; Jodi Segal, Johns Hopkins Bloomberg SPH & OptumLabs Visiting Fellows; Ravi Varadhan, Johns Hopkins University; Ramin Mojtabai, Johns Hopkins Bloomberg SPH

Contributed Poster Presentations 3:05 p.m.—3:50 p.m.

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SPEED: Environmetrics: Spatio-Temporal and Other Models—Contributed

Section on Statistics and the Environment, Section on Physical and Engineering Sciences

Chair(s): Paul McNicholas, McMaster University

Section on Physical and Engineering Sciences

1 **Tools for Simulation-Based Uncertainty Quantification in Remote Sensing Inverse Problems**—✦Jonathan Hobbs, Jet Propulsion Laboratory; Amy Braverman, Jet Propulsion Laboratory; Ali Behrangi, University of Arizona; Sandy Burden, University of Wollongong; Eric Fetzer, Jet Propulsion Laboratory; Kyo Lee, Jet Propulsion Laboratory; Hai Nguyen, Jet Propulsion Laboratory

Section on Statistics and the Environment

2 **A Bayesian Approach to Trend Filtering for Spatially Confounded Data**—✦Adam Walder

3 **Evaluating Proxy Influence and Reconstruction Skill in Data Assimilation Based Climate Field Reconstructions Using Extremal Depth**—✦Trevor Harris, University of Illinois at Urbana-Champaign, Statistics; Bo Li, University of Illinois at Urbana-Champaign; Nathan Steiger, Columbia University, Lamont-Doherty Earth Observatory; Jason Smerdon, Columbia University, Lamont-Doherty Earth Observatory; Justin Jacobs, Sandia National Laboratories

4 **Addressing Time of Measurement Bias in Records of Daily Temperature Extrema: a Spatio-Temporal Imputation Strategy**—✦Maxime Rischard, Harvard Statistics; Natesh Pillai, Harvard Statistics; Karen A. McKinnon, National Center for Atmospheric Research; Descartes Labs

5 **Preferential Sampling in Geostatistics**—✦Daniel Dinsdale, The University of British Columbia; Matias British Salibian-Barrera, The University of British Columbia

6 **Spline Smoothing in Dendrochronology**—✦Nicholas Bussberg, Indiana University; Justin Maxwell, Indiana University; Scott Robeson, Indiana University; Chunfeng Huang, Indiana University

MONDAY

7 **Discriminant Analysis for High-Dimensional Spatio-Temporal Data**—✦Rejaul Karim, Michigan State University; Taps Maiti, Michigan State University; Chae Young Lim, Seoul National University

8 **Combining Satellite Imagery and Numerical Model Simulation to Estimate Ambient Air Pollution: An Ensemble Averaging Approach**—✦Nancy Murray, Emory University; Howard Chang, Emory University; Heather Holmes, University of Nevada, Reno; Yang Liu, Emory University

9 **Identifying Epigenetic Regions Exhibiting Critical Windows of Susceptibility to Air Pollution**—✦Michele Zemplenyi, Harvard University; Mark J Meyer, Georgetown University; Brent A. Coull, Harvard TH Chan School of Public Health

10 **Regionalization of Multi-Scale Air Pollutants Based on Functional Principal Component Analysis**—✦Decai Liang, Peking University; Haozhe Zhang, Iowa State University; Hui Huang, Sun Yat-sen University

11 **Uncertainty Quantification for Remote Sensing Data: Sensitivity to a Priori Conditions and Additional Inputs in Optimal Estimation Retrieval Algorithms**—✦Joaquim Teixeira, Jet Propulsion Laboratory; Jonathan Hobbs, Jet Propulsion Laboratory; Amy Braverman, Jet Propulsion Laboratory; Michael Gunson, Jet Propulsion Laboratory

12 **Nonstationarity in Spatiotemporal Fisheries Models**—✦John Best, School of Aquatic and Fishery Sciences, University of Washington

Section on Physical and Engineering Sciences

13 **Covariate-Adjusted Recurrent Processes on Network and an Application to Geyser Eruption Prediction**—✦Zhongnan Jin, Virginia Tech; Yili Hong, Virginia Tech

Section on Statistics and the Environment

14 **Bayesian Estimation of Toluene and Trichloroethylene Biodegradation Kinetic Parameters**—✦Feng Yu, RTI International; Breda Munoz, RTI International

15 **An Application of Monothetic Clustering to Data with Circular Variables**—✦Tan V Tran, Montana State University; John C Priscu, Montana State University; Mark Greenwood, Montana State University; Marie Saback·, University of South Bohemia

16 **Evaluating the Impact of Using Residential Histories When Estimating Environmental Exposure Effects**—✦Anny-Claude Joseph, Virginia Commonwealth University; David C. Wheeler, Virginia Commonwealth University

260 CC- West Hall B

SPEED: Topics in Bayesian Analysis—Contributed

Section on Bayesian Statistical Science, Section on Statistical Computing

Chair(s): Paul McNicholas, McMaster University

Section on Bayesian Statistical Science

21 **Variable Selection with Missing Data Imputation in the High-Dimensional Setting**—✦Yunxi Zhang, The University of Texas Health Science Center at Houston

22 **Geometric Sensitivity Measures for Nonparametric Bayesian Models in Density Estimation**—✦Abhijoy Saha, The Ohio State University; Sebastian Kurtek, The Ohio State University; Karthik Bharath, The University of Nottingham

Section on Statistical Computing

23 **Using Modified Competitive Swarm Optimizer to Find D-Optimal Designs for Complicated Logistic Models**—✦Zizhao Zhang, UCLA; Weng Kee Wong, UCLA

Section on Bayesian Statistical Science

24 **Uncertainty in the Design Stage of Two-Stage Bayesian Propensity Score Analysis**—✦Shirley Liao

25 **A Theoretical Framework for Bayesian Nonparametric Regression: Orthonormal Random Series and Rates of Contraction**—✦Fangzheng Xie, Johns Hopkins University; Wei Jin, Johns Hopkins University; Yanxun Xu, Johns Hopkins University

26 **A Bayesian Semiparametric Joint Model for Longitudinal and Survival Data**—FPengpeng Wang, Florida State University; Jonathan R. Bradley, Florida State University; Elizabeth H. Slate, Florida State University

27 **Pseudo-Marginal Markov Chain Monte Carlo via Random Riemann Sums for Stochastically Scaled Gaussian Vectors**—✦Patrick Muchmore

28 **A Bayesian Model Selection Approach to Multiple Comparisons**—✦Javier E. Flores, University of Iowa; Andrew Neath, SIU Edwardsville; Joseph Cavanaugh, University of Iowa

29 **Consistent Group Selection Using Bayesian High-Dimensional Modeling**—✦Xinming Yang, University of Illinois at Urbana-Champaign; Naveen Naidu Narisetty, University of Illinois at Urbana Champaign

30 **Melded Bayesian Inference for Stochastic Theoretical Models with Applications in Agent Based Modeling**—✦Mark Dawkins

31 **Generalized Species Sampling Priors for Whole-Brain fMRI Analysis**—✦Yadong Lu, University of California, Irvine; Michele Guidani, University of California, Irvine

32 **Bayesian Cumulative Probability Models for Continuous Response Variables**—✦Nathan Thomas James, Vanderbilt University; Frank Harrell, Vanderbilt University, Dept of Biostatistics; Bryan E Shepherd, Vanderbilt University School of Medicine

33 **Bayesian Modular and Multiscale Regression**—✦Michele Peruzzi, David B Dunson, Duke University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

34 **Bayesian State Space Modeling of Physical Processes in Industrial Hygiene**—✦Nada Abdalla

35 **Combining Predictive Mean Matching with the Penalized Spline of Propensity Prediction Method When Performing Multiple Imputation**—✦Jay Xu, ; Roee Gutman, Brown University

36 **Dose Finding Methods Using Two Endpoints in Early Clinical Studies**—✦Kyounghwa Bae, Janssen Research & Development, LLC; Zhentao Tong, North Carolina State University ; Vladimir Dragalin, Janssen R&D

37 **Bayesian Model Selection for Markov Chains Using Sparse Probability Vectors**—✦Matthew Heiner, UC Santa Cruz; Athanasios Kottas, UC Santa Cruz; Stephan Munch, NOAA

38 **A Combinatoric Search for Clustered Levels in Categorical Predictors via Bayesian Model Selection**—✦Thomas Metzger, Virginia Tech; Christopher Franck, Virginia Tech

39 **Uncertainty in Probabilistic Weighted Multidimensional Scaling**—✦Lata Kodali, Leanna House, Virginia Tech

MONDAY

Invited Sessions 4:00 p.m.—5:50 p.m.

261 CC-West Ballroom BC

ASA President's Invited Address—Invited

ASA

Organizer(s): Lisa LaVange, University of North Carolina

4:05 p.m. Saving The Business of Journalism, One Data Insight At A Time—✦Laura Evans, *The New York Times*

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

TUESDAY JULY 31

Special Presentation 8:30 a.m.—10:20 a.m.

271 CC-West Ballroom A

Introductory Overview Lecture: Reproducibility, Efficient Workflows, and Rich Environments—Invited

JSM Partner Societies

Organizer(s): Ryan Tibshirani, Carnegie Mellon University

Chair(s): Jacob Bien, University of Southern California

8:35 a.m.	How Computational Environments Can (Unexpectedly) Influence Statistical Findings—✦Victoria Stodden, University of Illinois
8:50 a.m.	Living a Reproducible Life—✦Hadley Wickham, RStudio
9:30 a.m.	Beyond Reproducibility—✦Christopher Genovese, Carnegie Mellon University
10:10 a.m.	Floor Discussion

Invited Sessions 8:30 a.m.—10:20 a.m.

272 CC-West 214

● Advances in Statistical Methods for Meta?Analysis—Invited

General Methodology, WNAR

Organizer(s): Ludovic Trinquart, Boston University School of Public Health

Chair(s): Michael LaValley, Boston University School of Public Health

8:35 a.m.	A Re-Evaluation of Fixed Effect(s) Meta-Analysis—✦Kenneth Rice, University of Washington; Julian Higgins, University of Bristol; Thomas Lumley, University of Auckland
8:55 a.m.	The Myth of Making Inference for Overall Treatment Efficacy with Data from Multiple Studies via Meta-Analysis—✦Brian Claggett, Harvard Medical School
9:15 a.m.	Imputation Methods for Individual Participant Data Meta-Analysis—✦Eloise Kaizar, Ohio State University; Deborah Kunkel, The Ohio State University
9:35 a.m.	Multivariate Meta-Analysis Model for the Difference in Restricted Mean Survival Times—Isabelle R Weir, Boston University School of Public Health; ✦Ludovic Trinquart, Boston University School of Public Health
9:55 a.m.	Multivariate Network Meta-Analysis to Mitigate Outcome Reporting Bias—✦Stacia Marie DeSantis, University of Texas Health Science Center at Houston
10:15 a.m.	Floor Discussion

273 CC-West 206/207

■ ● Statistical Analysis of Complex Imaging Data—Invited

Section on Statistics in Imaging, ENAR, IMS, SSC

Organizer(s): Dehan Kong, University of Toronto

Chair(s): Dehan Kong, University of Toronto

8:35 a.m.	Calculating a Generated Effect Modifier (GEM) for Treatment Selection Based on Imaging Data—✦Todd Ogden, Columbia University; Hyung Park, Columbia University; Eva Petkova, NYU School of Medicine; Thaddeus Tarpey, Wright State University
9:00 a.m.	Multimodal Neuroimaging Analysis—✦Lexin Li, University of California at Berkeley
9:25 a.m.	Exact Spike Train Inference from Calcium Imaging Data via L0 Optimization—✦Sean Jewell, University of Washington; Daniela Witten, University of Washington
9:50 a.m.	New Approaches Towards Translational Neuroimaging—✦Martin A Lindquist, Johns Hopkins University
10:15 a.m.	Floor Discussion

274 CC-West 110

■ Random Forests in Big Data, Machine Learning and Statistics—Invited

Section on Statistical Learning and Data Science, Section on Nonparametric Statistics, Section on Statistical Computing, SSC

Organizer(s): Ruoqing Zhu, University of Illinois Urbana-Champaign

Chair(s): Yifan Cui, University of North Carolina at Chapel Hill

8:35 a.m.	Standard Errors and Confidence Intervals for Variable Importance in Random Forest Regression, Classification, and Survival—✦Hemant Ishwaran, University of Miami
8:55 a.m.	Random Forests for Big Data—✦Jean-Michel Poggi, LMO, University Paris Sud; Robin Genuer, ISPED, Univ. Bordeaux; Nathalie Villa-Vialaneix, MIA-T, INRA of Toulouse; Christine Tuleau-Malot, University Nice, CNRS, LJAD
9:15 a.m.	Distributional Trees and Forests—✦Lisa Schlosser, University of Innsbruck; Torsten Hothorn, University of Zurich; Reto Stauffer, University of Innsbruck; Achim Zeileis, University of Innsbruck
9:35 a.m.	Beyond the Bagg: Consistent Importance Intervals for Random Forest Predictors—✦Lucas Mentch, University of Pittsburgh; Giles Hooker, Cornell University
9:55 a.m.	On the Asymptotics of Tree-Based Survival Models—✦Ruoqing Zhu, University of Illinois Urbana-Champaign; Yifan Cui, University of North Carolina at Chapel Hill; Michael Kosorok, University of North Carolina at Chapel Hill; Mai Zhou, University of Kentucky
10:15 a.m.	Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

275 CC-East 9

● Advances in Dependence Modeling Through Copulas—Invited

SSC, IMS, Section on Risk Analysis

Organizer(s): Johanna G. Neslehova, McGill University

Chair(s): Johanna G. Neslehova, McGill University

8:35 a.m. Visualizing Dependence in High Dimensions—✦Marius Hofert, University of Waterloo; Wayne Oldford, University of Waterloo

9:00 a.m. Bayesian Inference for Conditional Copulas Using Gaussian Process Single Index Models—✦Radu V Craiu, University of Toronto; Evgeny Levi, University of Toronto

9:25 a.m. Conditional Normal Copulas and Their Use in Applications—✦Pavel Krupskiy, University of British Columbia; Harry Joe, University of British Columbia; Marc G Genton, King Abdullah University of Science and Technology

9:50 a.m. Semiparametric Inference for Copulas of Mixed Data—✦Bruno Remillard, HEC Montreal; Christian Genest, McGill University; Johanna G. Neslehova, McGill University

10:15 a.m. Floor Discussion

276 CC-West 222

■ Addressing Emerging Statistical Challenges in Microbiome Studies—Invited

WNAR, ENAR, Section on Statistics in Genomics and Genetics

Organizer(s): Michael C. Wu, Fred Hutchinson Cancer Research Center

Chair(s): Michael C. Wu, Fred Hutchinson Cancer Research Center

8:35 a.m. Kernel Machine Regression Methods for Clustered Microbiome Community Data—✦Ni Zhao, Johns Hopkins University; Haotian Zheng, Tsinghua University; Xiang Zhan, Pennsylvania State University

9:00 a.m. A Framework for Multivariate Causal Mediation Analysis with Microbiome Data—✦Alexander V Alekseyenko, Medical University of South Carolina

9:25 a.m. Analyzing Matched Sets of Microbiome Data Using the Linear Decomposition Model—✦Glen Alan Satten, Centers for Disease Control and Prevention; Yijuan Hu, Emory University; Zhengyi Zhu, Emory University

9:50 a.m. Trend Tests for Microbiome Data—✦Abhishek Kaul, WSU; Shyamal Peddada, University of Pittsburgh; Siddhartha Mandal, Public Health Foundation of India; Ori Davidov , Haifa University

10:15 a.m. Floor Discussion

277 CC-West 224

● Recent Advances in Methods to Address Measurement Error—Invited

Biometrics Section, ENAR, WNAR

Organizer(s): Pamela A Shaw, University of Pennsylvania

Chair(s): Sharon X Xie, University of Pennsylvania

8:35 a.m. Correcting for Errors in Variables Derived from Electronic Health Records Using Validation Sampling and Multiple Imputation—✦Bryan E Shepherd, Vanderbilt University School of Medicine; Mark Giganti, Vanderbilt University School of Medicine

9:00 a.m. On the Use of Raking to Improve Regression Calibration: A Flexible Method to Address Error-Induced Bias Efficiently—Eric Oh, University of Pennsylvania; ✦Pamela A Shaw, University of Pennsylvania

9:25 a.m. Big Data as a Measurement Error Problem—✦Raymond J. Carroll, Texas A & M University; Ya Su, Texas A&M University; Anirban Bhattacharya, Texas A&M University; Yan Zhang, Johns Hopkins University; Nilanjan Chatterjee, Johns Hopkins University

9:50 a.m. Recent Developments in Modeling Nonlinear Relationships in the Presence of Measurement Error—✦Ruth Keogh, London School of Hygiene & Tropical Medicine; Christen Gray, London School of Hygiene & Tropical Medicine

10:15 a.m. Floor Discussion

278 CC-West 116

■ ● Combining Markers for Classification in Practical Tasks—Invited

Section on Medical Devices and Diagnostics, Biometrics Section, Society for Medical Decision Making, SSC

Organizer(s): Andriy Bandos, University of Pittsburgh

Chair(s): Andriy Bandos, University of Pittsburgh

8:35 a.m. Issues Regarding Biomarker Combination Within ROC Framework: Strategies, Target Functions, and Large Number of Weak Markers—✦Lili Tian, SUNY at Buffalo; Li Yan, Roswell Park Cancer Institute; Jingjing Yin, Georgia Southern University; Le Kang, Virginia Commonwealth University

8:55 a.m. Robust Combination of Biomarkers for Classification with Covariate Adjustment—✦Ying Huang, Fred Hutchinson Cancer Research Center; Soyoung Kim, Medical College of Wisconsin

9:15 a.m. Combining Biomarkers to Improve Classification Accuracy Under Heterogeneous Transformations—✦Aiyi Liu, BBB/DIPHR/NICHD; Wei Zhang, BBB/DIPHR/NICHD

9:35 a.m. New Dimension Reduction Methods for Combining Longitudinally Measured Biomarkers—✦Ruth Pfeiffer ,

National Cancer Institute; Wei Wang , George Washington University ; Efstathia Bura , Vienna University of Technology

9:55 a.m. Disc: Ying Lu, Stanford University

10:15 a.m. Floor Discussion

279 CC-West 306

■ Technometrics Invited Paper Session—Invited

Technometrics

Organizer(s): Daniel W Apley, Northwestern University

Chair(s): Daniel W Apley, Northwestern University

8:35 a.m. Model Calibration with Censored Data—✦Shan Ba, The Procter & Gamble Company; Fang Cao, Georgia Institute of Technology; William Brenneman, The Procter & Gamble Company; Roshan Joseph Vengazhiyil, Georgia Institute of Technology

9:00 a.m. Sequential Design for Functional Calibration of Computer Models—✦Ahmed Aziz Ezzat, Texas A&M University; Arash Pourhabib, Walmart Global eCommerce; Yu Ding, Texas A&M University

9:25 a.m. Disc: Max Morris, Iowa State Univesity

9:50 a.m. Disc: David Higdon, Virginia Tech

10:15 a.m. Floor Discussion

280 CC-East 19

● Leading the Stream: Novel Methods for Streaming Data—Invited

Business and Economic Statistics Section, Section on Statistical Learning and Data Science, Royal Statistical Society

Organizer(s): Idris Eckley, Lancaster University

Chair(s): Hernando Ombao, King Abdullah University of Science and Technology

8:35 a.m. Automated Bayesian Inference for Large-Scale Datastreams—✦Trevor Campbell, Massachusetts Institute of Technology; Tamara Broderick, Massachusetts Institute of Technology

9:00 a.m. Sequential Change-Point Detection Based on Nearest Neighbors—✦Hao Chen, University of California, Davis

9:25 a.m. Multiscale Models for Continuous Time Interaction Data—✦Tyler McCormick, University of Washington; Wesley Lee, University of Washington; Rumi Chunara, New York University

9:50 a.m. Efficient Detection of Anomalies Within Streaming Data—Alexander Fisch, Lancaster University; ✦Idris Eckley, Lancaster University; Paul Fearnhead, Lancaster University

10:15 a.m. Floor Discussion

281 CC-East 16

Clustering with Mixtures: Towards Emerging Data Types—Invited

The Classification Society, SSC, Section on Statistical Computing

Organizer(s): Paul McNicholas, McMaster University

Chair(s): Brian C Franczak, MacEwan University

8:35 a.m. On the Role of Transformations in Finite Mixture Modeling—✦Volodymyr Melnykov, University of Alabama

9:00 a.m. Variable Selection for Mixed Data Clustering: Application in Human Population Genomics—✦Mohammed Sedki, Paris-Sud University

9:25 a.m. A Bayesian Approach for Clustering Skewed Data Using Mixtures of Multivariate Normal-Inverse Gaussian Distributions—✦Sanjeena Dang, Binghamton University (SUNY)

9:50 a.m. Disc: Jeffrey L Andrews, University of British Columbia Okanagan

10:15 a.m. Floor Discussion

Invited Panels 8:30 a.m.—10:20 a.m.

282 CC-West 211

● The Commission on Evidence-Based Policy Making - One Year Later—Invited

Government Statistics Section, Scientific and Public Affairs Advisory Committee, Committee on National Statistics, NAS

Organizer(s): Michael Hawes, U.S. Department of Education

Chair(s): Michael Hawes, U.S. Department of Education

Panelists: ✦Katharine Abraham, University of Maryland

✦Nancy Potok, Office of Management and Budget

✦Amy O'Hara, Stanford University

✦Julia Lane, New York University

10:10 a.m. Floor Discussion

283 CC-West 118

■ ● Transforming of Statistical Programmers and Analysts: Past, Current and Future—Invited

Section for Statistical Programmers and Analysts, Biopharmaceutical Section

Organizer(s): Kuolung Hu, Amgen

Chair(s): William Coar, Axio Research

Panelists: ✦Wenyun Ji, Amgen

✦Satha Thill, Abbvie

✦Melvin Munsaka, AbbVie, Inc.

10:10 a.m. Floor Discussion

TUESDAY

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

284 CC-West 215/216

■ ● So You Think You Can Predict Crime? Lessons Learned from the NIJ Spatiotemporal Crime Forecasting Competition—Invited

Committee on Law and Justice Statistics, Section on Statistical Learning and Data Science

Organizer(s): William Herlands, Carnegie Mellon University; Charles Loeffler, University of Pennsylvania

Chair(s): Charles Loeffler, University of Pennsylvania

Panelists: ✦Joel Hunt, National Institute of Justice
✦Patryk Miziula, deepsense.ai
✦George Mohler, IUPUI
✦John Hollywood, RAND
✦Tuanjie Tong, Intuidex, Inc.
✦Dylan Fitzpatrick, Carnegie Mellon University

10:10 a.m. Floor Discussion

Topic Contributed Sessions 8:30 a.m.—10:20 a.m.

285 CC-West 219

■ Advances in Dimension Reduction and Model Selection for Statistically Challenging Data—Topic Contributed

IMS, Biometrics Section, ENAR, SSC

Organizer(s): Samuel Mueller, The University of Sydney

Chair(s): Samuel Mueller, The University of Sydney

8:35 a.m. Spatial-Temporal Latent Variable Models: a Potential Waste of Space and Time?—✦Francis Hui, Mathematical Sciences Institute

8:55 a.m. Functional Censored Quantile Regression—✦Fei Jiang, The University of Hong Kong

9:15 a.m. Improved Selection of High-Dimensional Neuroimaging Biomarkers Associated with Neurodegenerative Disease Progression—✦Tanya Garcia, Texas A&M University; Jeffrey S Morris, The University of Texas M.D. Anderson Cancer Center

9:35 a.m. Bayesian Regression for High-Dimensional Data Using a Prior on the Model Fit—✦Howard D Bondell, University of Melbourne

9:55 a.m. Disc: Alan H Welsh, The Australian National University

10:15 a.m. Floor Discussion

286 CC-West 120

■ ● Quantitative Methods for Decision-Making in Drug Development—Topic Contributed

Biopharmaceutical Section, Statistics in Biopharmaceutical Research Journal, Society for Medical Decision Making

Organizer(s): Liang Fang, MyoKardia

Chair(s): Liang Fang, MyoKardia

8:35 a.m. Data-Driven Biomarker Evaluation in Adaptive Designs Using SIDES—✦Ilya Lipkovich, IQVIA; Alex Dmitrienko, Mediana Inc

8:55 a.m. Optimal Approach for Addressing Multiple Stakeholders' Requirements in Drug Development—✦Zoran Antonijevic,

9:15 a.m. Benefit Cost Ratio Analysis in Oncology Drug Development: Single Arm Vs RCT—✦Thomas Jemielita, Merck & Co.; Cong Chen, Merck & Co.

9:35 a.m. A General Analytical Framework for Deriving Probability of Success—✦Ron Yu, Gilead Sciences, Inc.; Liang Fang, MyoKardia; Xiaomin Lu, Gilead Sciences, Inc.

9:55 a.m. Leveraging Bayesian Methods, Modeling, and Simulation to Improve Decision-Making and Increase Probability of Success—✦Karen Price, ; Stephen Ruberg, Analytix Thinking, LLC

10:15 a.m. Floor Discussion

287 CC-West 210

Student Outcomes in Undergraduate Courses Using a Simulation-Based Inference Approach to Teaching Statistics—Topic Contributed

Section on Statistical Education, Section on Statistical Computing

Organizer(s): Nathan Tintle, Dordt College

Chair(s): Beth Chance, Cal Poly - San Luis Obispo

8:35 a.m. Assessing Student Improvement in a Multi-Section Coordinated Simulation-Based Curriculum—✦Stacey Hancock, Montana State University

8:55 a.m. Simulation-Based Inference in a Large, Online Intro Course: Meaningful Assessment with Minimal Grading—✦Erin Blankenship, University of Nebraska

9:15 a.m. Assessing Students' Strengths and Weaknesses in Simulation-Based Introductory Statistics Courses at the Graduate and Undergraduate Levels—✦Anelise Sabbag, Cal Poly State University

9:35 a.m. Results from a Multi-Institution Study of the Progression and Retention of Student Learning Using Simulation-Based Inference—✦Nathan Tintle, Dordt College

9:55 a.m. Extending Simulation-Based Inference to a Conceptual Second Course in Statistics: Finding Meaning in a Multivariate World—✦Karen McGaughey, Cal Poly State University

10:15 a.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

288 CC-West 109

■ Genomical Is the New Astronomical: Big Data Algorithms and Applications in Genomics—Topic Contributed

Section on Statistical Computing, Section on Statistics in Genomics and Genetics

Organizer(s): Min Zhang, Purdue University

Chair(s): Wendy Wong, Inova Translational Medicine Institute

8:35 a.m. Cloud Computing Approaches to Genomic Data Science—✦Sean Davis, National Cancer Institute

8:55 a.m. Improving the Value of Public Data with Recount2 and Phenotype Prediction—✦Shannon Ellis, Johns Hopkins University, Bloomberg School of Public Health

9:15 a.m. Analyzing Large Scale Genomics Data with Apache Spark and ADAM—✦Frank Nothaft, Databricks

9:35 a.m. Inferring Gene Regulatory Networks from a Population of Yeast Segregants—✦Dabao Zhang, Purdue University

9:55 a.m. Big Data Distributed System for Phenome and Genome Management and Analysis in a Large Health System—✦Wendy Wong, Inova Translational Medicine Institute; Xinyue Liu, Inova Translational Medicine Institute; Prachi Kothiyal, Inova Translational Medicine Institute; Wei Zhu, Inova Translational Medicine Institute; Fang Zhou, Inova Translational Medicine Institute; Shan Gao, Inova Translational Medicine Insitute; Sakthi Madhappan, Inova Translational Medicine Institute; Lin Smith, Inova Translational Medicine Institute; Henry Hunter, Inova Translational Medicine Institute; Aaron Black, Inova Translational Medicine Institute; John F Deeken, Inova Translational Medicine Institute; John E Niederhuber, Inova Translational Medicine Institute

10:15 a.m. Floor Discussion

289 CC-East 10

Advancement in Statistical Methods for Reliability Data—Topic Contributed

Section on Physical and Engineering Sciences, Quality and Productivity Section

Organizer(s): Lu Lu, University of South Florida

Chair(s): Lu Lu, University of South Florida

8:35 a.m. Applications of the Fractionally-Random-Weight Bootstrap—✦William Meeker, Iowa State University; Chris Gotwalt, JMP; Yili Hong, Virginia Tech

8:55 a.m. Comparing the Reliability of Related Populations with the Probability of Agreement—✦Nathaniel Stevens, University of San Francisco

9:15 a.m. A Bayesian Nonparametic Approach to Multistate Models—✦Richard Warr, Brigham Young University

9:35 a.m. Planning of Accelerated Degradation Tests—✦I-Chen Lee, National Cheng Kung University

9:55 a.m. Disc: Yili Hong, Virginia Tech

10:15 a.m. Floor Discussion

290 CC-West 301

■ ● Drug Safety Monitoring in a Complex World-Wide Regulatory Environment - Strategy Meets Methodologies—Topic Contributed

Biopharmaceutical Section

Organizer(s): Susan Duke, FDA/CDER/Office of Biostatistics

Chair(s): Amit Bhattacharyya, ACI Clinical

8:35 a.m. Quantitative Regulatory Landscape—✦Lothar Tremmel, CSL Behring

8:55 a.m. Going from the Program Safety Analysis Plan to the Aggregate Safety Analysis Plan—✦Barbara Hendrickson, AbbVie

9:15 a.m. Specific Safety Monitoring Tools and How This Will Benefit Drug Safety—✦James Buchanan, Covilance LLC

9:35 a.m. Disc: Jonathan Seltzer, ACI Clinical

9:55 a.m. Floor Discussion

291 CC-West 112

■ ● Statistical Applications in Forensic Evidence—Topic Contributed

Advisory Committee on Forensic Science, Section on Statistics in Defense and National Security

Organizer(s): Sam Tyner, Iowa State University

Chair(s): Sam Tyner, Iowa State University

8:35 a.m. A Comparison of Similarity Scores Between Bullet Casings: Forensic Analysts Versus an Algorithm—✦Maria Cuellar, Carnegie Mellon University

8:55 a.m. Quantifying Association Between Discrete Event Time Series—✦Christopher Galbraith, University of California, Irvine; Padhraic Smyth, University of California, Irvine; Hal Stern, University of California, Irvine

9:15 a.m. Approaches to Matching Darknet Market Seller Accounts—✦Xiao Hui Tai, Carnegie Mellon University

9:35 a.m. Accounting for Individual Differences Among Latent Print Examiners Using Item Response Theory—✦Amanda Luby, Carnegie Mellon University

9:55 a.m. A Bayesian Approach to the Analysis of Handwritten Evidence—✦Amy M Crawford, Iowa State University; Nicholas S Berry, Iowa State University; Alicia Carriquiry, Iowa State University

10:15 a.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

292 CC-West 205

■ Small Area Estimation with Small Samples—Topic Contributed

Survey Research Methods Section

Organizer(s): Tom Krenzke, Westat

Chair(s): Tom Krenzke, Westat

8:35 a.m. Choice of Small Area Models Based on Sample Designs and Availability of Auxiliary Data in PIAAC Study—✦Jianzhu Li, Westat; Leyla Mohadjer, Westat; Wendy VanDeKerckhove, Westat; Lin Li, Westat; Tom Krenzke, Westat

8:55 a.m. Multilevel Regression and Poststratification (MRP) for Small Area Estimation with Geocoded FoodAPS Data—✦Xingyou Zhang, Economic Research Service, USDA; Mark Denbaly, Economic Research Service, USDA; John Kirlin, Economic Research Service, USDA; Elina T. Page, Economic Research Service, USDA; Elizabeth Larimore, Economic Research Service, USDA; Shelly Ver Ploeg, Economic Research Service, USDA

9:15 a.m. Spatial-Temporal Small Area Estimation Models for Cancer Incidence—✦Benmei Liu, National Cancer Institute; Li Zhu, National Cancer Institute; Huann-Sheng Chen, National Cancer Institute; Joe Zou, Information Management Services; Rebecca Siegel, American Cancer Society; Kim D. Miller, American Cancer Society; Ahmedin Jemal, American Cancer Society; Eric J. Feuer, National Cancer Institute

9:35 a.m. Further Comparisons of Unit- and Area-Level Small Area Estimators—✦Robert Fay, Westat

9:55 a.m. Disc: J. N. K. Rao, Carleton University

10:15 a.m. Floor Discussion

TUESDAY

293 CC-East 14

■ ● Curve Estimation Under Dependence—Topic Contributed

Royal Statistical Society

Organizer(s): Sucharita Ghosh, Swiss Federal Research Institute WSL

Chair(s): Kevin J. Keen, University of Northern British Columbia

8:35 a.m. Nonparametric Multivariate Density Estimation Under Dependence—✦Jan Beran, University of Konstanz

8:55 a.m. Double-Conditional Smoothing of High-Frequency Volatility Surface—✦Yuanhua Feng,

9:15 a.m. Finding Hotspots—✦Sucharita Ghosh, Swiss Federal Research Institute WSL

9:35 a.m. Change-Point Problem Fro Long Memory Stochastic Volatility Models—✦Rafal Kulik, University of Ottawa

9:55 a.m. Floor Discussion

294 CC-West 122

■ ● Epidemiologic Methods for the Re-Use of Existing Data—Topic Contributed

Section on Statistics in Epidemiology

Organizer(s): Erinn Hade, Ohio State University

Chair(s): Sarah Janse, The Ohio State University

8:35 a.m. Genetic Association Testing with Imperfect Phenotypes Derived from Electronic Health Records—✦Jennifer Sinnott, Ohio State University

8:55 a.m. Data Integration for the Simultaneous Estimation of Normal Means—✦Sihai Dave Zhao, University of Illinois at Urbana-Champaign

9:15 a.m. Spatiotemporal Trends in Heart Disease Mortality Rates by Age, Race, and Sex—✦Harrison Quick, Drexel University; Adam Vaughan, Centers for Disease Control and Prevention; Michele Casper, Centers for Disease Control and Prevention; Linda Schieb, Centers for Disease Control and Prevention; Michael Kramer, Emory University

9:35 a.m. Re-Use of Multiple Nested Case Control Studies from the Women's Health Initiative—✦Erinn Hade, Ohio State University; Theodore M. Brasky, The Ohio State University

9:55 a.m. Regression Splines and Multi-Group Propensity Score Weighting for the Study of Surgical Volume-Outcome Relationships—✦Jennifer Cooper, Nationwide Children's Hospital

10:15 a.m. Floor Discussion

295 CC-West 217

Innovative Approaches to Teaching Biostatistics Partially or Fully Online—Topic Contributed

Section on Teaching of Statistics in the Health Sciences

Organizer(s): Ann M Brearley, University of Minnesota

Chair(s): Laura J Le, University of Minnesota

8:35 a.m. Adult Learners , a Flipped Classroom, and an Online Biostatistics Course: a Recipe for Disaster?—✦Martina Mueller, Medical University of South Carolina; Mary Dooley, Medical University of South Carolina

8:55 a.m. Double Time: Integrating Online Learning Tools with a Flipped Classroom in a Public Health Statistics Course—✦Brandon George, Thomas Jefferson University

9:15 a.m. Active Learning Approaches for a Large Online Biostatistics Course—✦Rebecca Andridge, The Ohio State University College of Public Health

9:35 a.m. Flipping Online: Creating an Active Learning Classroom in an Online Biostatistics Course—✦Ann M Brearley, University of Minnesota; Laura J Le, University of Minnesota

9:55 a.m. Ideas for Creating and Teaching Online Biostatistics Courses for Those with Limited Resources—✦Michael Jiroutek, Campbell University

10:15 a.m. Floor Discussion

296 CC-West 121

■ Advances in Inference for Massive Spatio-Temporal Environmental Data with Applications in Remote Sensing—Topic Contributed

ENAR, Section on Statistics and the Environment

Organizer(s): Jonathan Hobbs, Jet Propulsion Laboratory

Chair(s): Anirban Mondal, Case Western Reserve University

8:35 a.m. Multi-Resolution Approximations of Gaussian Processes for Multivariate Spatial Data—✦Wenlong Gong, Texas A&M University

8:55 a.m. Multi-Resolution Filters for Massive Spatio-Temporal Data—✦Marcin Jurek, Texas A&M University; Matthias Katzfuss, Texas A&M University

9:15 a.m. Coupling Forest In-Situ and Spaced-Based Lidar Samples to Improve National-Scale Forest Inventory: a Joint Spatial Modeling Framework for Forest and Lidar Variable Prediction Lever—✦Chad Babcock, University of Washington; Andrew Oliver Finley, Michigan State University; Hans-Erik Andersen, USDA Forest Service; Bruce Douglas Cook, NASA Goddard Space Flight Center; Douglas C Morton, NASA Goddard Space Flight Center

9:35 a.m. A Parametric Unmixing Model for Satellite Data—✦Colin Lewis-Beck, Iowa State University

9:55 a.m. Dynamic Fused Gaussian Process for Massive Sea Surface Temperature Data from MODIS and AMSR-E Instruments—✦Emily L. Kang, University of Cincinnati; Pulong Ma, University of Cincinnati

10:15 a.m. Floor Discussion

297 CC-West 202

SBSS Student Travel Award Session 1—Topic Contributed

Section on Bayesian Statistical Science

Organizer(s): Robert Gramacy, Virginia Tech; Elena A Erosheva, University of Washington

Chair(s): Elena A Erosheva, University of Washington

8:35 a.m. Bayesian Inference of Latent Gaussian Graphical Models for Mixed Data—✦Zehang Li, University of Washington; Tyler McCormick, University of Washington; Samuel Clark, The Ohio State University

8:55 a.m. Bayesian Probabilistic Numerical Methods—✦Jonathan Cockayne,

9:15 a.m. Bayesian Regularization for Graphical Models with Unequal Shrinkage—✦Lingrui Gan, University of Illinois At Urbana-Champaign; Naveen Naidu Narisetty, University of Illinois at Urbana Champaign; Feng Liang, University of Illinois at Urbana-Champaign

9:35 a.m. Bayesian Inference in Nonparanormal Graphical Models—✦Jami Mulgrave, ; Subhashis Ghosal, North Carolina State University

9:55 a.m. Recursive Non-Parametric Predictive for a Discrete Regression Model—✦Lorenzo Cappello, ; Stephen Walker,

10:15 a.m. Floor Discussion

Contributed Sessions 8:30 a.m.—10:20 a.m.

298 CC-West 208

SPEED: Innovations in Survey Sampling Designs: Administrative Data, Record Linkage, Non-Probability Samples, and More—Contributed

Survey Research Methods Section, Government Statistics Section, International Statistical Institute

Chair(s): Erin Tanenbaum, NORC at the University of Chicago

8:35 a.m. Using 100% Medicare Claims Data for Diabetes Surveillance: a Novel Framework—✦Linda Andes, Centers for Disease Control & Prevention

8:40 a.m. Variance Estimation Under Model-Implied Randomization of Nonrandom Samples—✦Vladislav Beresovsky, National Center for Health Statistics

8:45 a.m. Addressing Challenges in an International Study with Propensity Scores: a Case Study from Indonesia—Susan Edwards, RTI International; ✦Marissa Gargano, RTI International

8:50 a.m. Bayesian Methods for Stratified Sample Allocation Using Imperfect Information—✦Jonathan Mendelson, University of Maryland; Joe Sedransk, University of Maryland

8:55 a.m. Are Shoppers Representative of the Population? Using Geofenced Grocery and Convenience Stores to Represent the Population—✦Davia Moyse, ICF; Matt Jans, ICF; Ronaldo Iachan, ICF; Lee Harding, ICF; Scott Worthge, MFour; James Dayton, ICF; Yangyang Deng, ICF; Tracy Visconti, MFour

9:00 a.m. NAICS 2017: a New Process Yields Interesting Results—✦Sania Khan, US Bureau of Labor Statitics; Emily Thomas, US Bureau of Labor Statistics; Sharon S Stang, US Bureau of Labor Statitsics

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

9:05 a.m. Combining Probability and Nonprobability Samples for Population Inference—✦Jill A Dever, RTI International

9:10 a.m. Willingness to Collect Smartphone Sensor Measurements in a Dutch Probability-Based General Population Panel—✦Bella Struminskaya, ; Vera Toepoel, Utrecht University; Peter Lugtig, Utrecht University; Barry Schouten, CBS

9:15 a.m. Different Linkage Methods, Same Results? Linking National Center for Health Statistics Survey Data to Centers for Medicare and Medicaid Administrative Records—✦Cordell Golden, National Center for Health Statistics (NCHS); Adam Fedorowicz, National Center for Health Statistics (NCHS); Lisa B Mirel, National Center for Health Statistics (NCHS)

9:20 a.m. Sampling from Twitter: Can a Probability Sample Be Drawn to Target Hard to Reach Populations?—✦Marcus Berzofsky, RTI International; Tasseli McKay, RTI International; Patrick Hsieh, RTI International; Amanda Smith, RTI Internatinal; Natasha Latzman, RTI International

9:30 a.m. Can We Increase Contact Rates and Reduce Costs in a Longitudinal Survey by Including an SMS in the Contact Protocol? Results from an Embedded Experiment—✦Anton Johansson, Statistics Sweden; Dan Hedlin, Stockholm university

9:35 a.m. Record Linkage as a Decision Problem—✦Alan Karr, RTI International

9:40 a.m. USING FULLY BAYESIAN MRP to ESTIMATE ANALYTIC QUANTITIES—✦Robert Petrin, Ipsos Public Affairs; Alexa DiBenedetto, Ipsos Public Affairs; Luke Vaicunas, Ipsos Public Affairs; Dominick Hannah, Ipsos Public Affairs; Atisha Amin, Ipsos Public Affairs

9:45 a.m. Reengineered Address Canvassing for the 2018 End-To-End Census Test—✦Matthew Herbstritt,

9:50 a.m. When to Use Commercial Data for Improved Efficiency—✦Edward English, NORC At the University of Chicago; Colm O'Muircheartaigh, NORC at the University of Chicago

9:55 a.m. Samples, Unite! Understanding the Consequences of Combining Probability and Non-Probability Samples When Linking Records Is Difficult—✦Benjamin Williams, Southern Methodist University

299 CC-West 212

SPEED: Recent Advances in Statistical Genomics and Genetics—Contributed

Biometrics Section, Section on Statistics in Genomics and Genetics, Section on Teaching of Statistics in the Health Sciences

Chair(s): Jia Hua, State University of New York At Buffalo

8:35 a.m. Subset Testing and Analysis of Multiple Phenotypes—✦Andriy Derkach, National Cancer Institute; Ruth Pfeiffer , National Cancer Institute

8:40 a.m. ProxECAT: Proxy External Controls Association Test. a New Case-Control Gene Region Association Test Using Allele Frequencies from Public Controls—✦Audrey Hendricks, University of Colorado - Denver; Stephen Billups, University of Colorado - Denver; Hamish Pike, University of Colorado-Aschutz Medical Campus; Eleftheria Zeggini, Wellcome Trust Sanger Institute; Stephanie Santorico, University of Colorado - Denver; Inís Barroso, Wellcome Trust Sanger Institute; Josee Dupuis, Boston University School of Public Health

8:45 a.m. NanoStringDiffWeb: a Web-Based Tool for Differential Expression Analysis of NanoString NCounter Data—✦Tingting Zhai, University of Kentucky; Hong Wang, Eli Lilly and Company; Arnold Stromberg, University of Kentucky; Chi Wang, University of Kentucky; Jinpeng Liu, Markey Cancer Center, University of Kentucky; Isaac Hands, Markey Cancer Center, University of Kentucky; Eric B. Durbin, Markey Cancer Center, University of Kentucky; Heidi Weiss, Markey Cancer Center, University of Kentucky

8:50 a.m. Three-Component Dissection of Tumor Cellular Heterogeneity by a Bayesian Hierarchical Model—✦Tao Wang, UT Southwestern Medical Center

8:55 a.m. Visualization Methods for RNA-Sequencing Data Analysis—✦Lindsay Rutter, Iowa State University; Dianne Cook, Monash University

9:00 a.m. A Bayesian Gene-Based GWAS Analysis of Osteosarcoma Trio Data Using a Hierarchically Structured Prior—✦Yi Yang, University of Minnesota; SAONLI BASU, University of Minnesota; Lisa Mirabello, National Institutes of Health; Logan Spector, University of Minnesota; Lin Zhang, University of Minnesota

9:05 a.m. Differences in Gene Silencing Effect of MiRNA and Methylation in Two Histologic Subtypes—✦Prabhakar Chalise, University of Kansas Medical Center

9:10 a.m. SAVER: Gene Expression Recovery for UMI-Based Single Cell RNA Sequencing—✦Mo Huang, University of Pennsylvania; Jingshu Wang, University of Pennsylvania; Mingyao Li, University of Pennsylvania; Nancy Zhang, University of Pennsylvania

9:15 a.m. Dysregulated Expression of Glucose Metabolic Enzymes Is Associated with Poor Prognosis of Patients with Hepatocellular Cancer—✦Xiaoli Zhang, Ohio State University; Kalpana Ghoshal, The Ohio State University

9:20 a.m. An Ensemble RNA-Seq Differential Analysis Method for False Discovery Rate Control—✦Dongmei Li, University of Rochester; Ananta Paine, University of Rochester; Timothy D. Dye, University of Rochester

9:30 a.m. A Two-Stage Microbial Association Mapping Framework with Advanced FDR Control—✦Jiyuan Hu, New York University School of Medicine; Huilin Li, New York University; Hyunwook Koh, NYU langone medical center; Linchen He, NYU langone medical center; Martin Blaser, New York University School of Medicine

9:35 a.m. Penalized Latent Dirichlet Allocation Model in Single Cell RNA Sequencing—✦Xiaotian Wu, Brown University; Zhijin Wu, Brown University; Hao Wu, Emory University

9:40 a.m. THREE-WAY CLUSTERING of MULTI-TISSUE MULTI-INDIVIDUAL GENE EXPRESSION DATA USING SEMI-NONNEGATIVE TENSOR DECOMPOSITION—

✦Miaoyan Wang, UC Berkeley; Jonathan Fischer, UC Berkeley; Yun S. Song, UC Berkeley

9:45 a.m. Fisher's Exact Approach for Post Hoc Analysis of a Chi-Squared Test—✦Guogen Shan, University of Nevada Las Vegas; Shawn Shawn Gerstenberger, University of Nevada Las Vegas

9:50 a.m. Four-Step Cross-Validation Procedure in Biomarker Prognostic Cox Model Development—✦Jianying Zhang, Ohio State University; Lianbo Yu, Ohio State University; Charles L Shapiro, Mount Sinai Medical Center

9:55 a.m. Microbial Network Estimation Using Compositional Graphical Lasso—✦Chuan Tian, Oregon State University; Duo Jiang, Oregon State University; Tom Sharpton, Oregon State University; Yuan Jiang, Oregon State University

10:00 a.m. Differential Abundance Analysis with Empirical Bayes Shrinkage Estimation of Variance (DASEV) for Proteomic and Metabolomic Data—✦Zhengyan Huang, ; Chi Wang, University of Kentucky; Arnold Stromberg, University of Kentucky

10:05 a.m. A Probabilistic Model to Estimate the Temporal Order of Pathway Mutations During Tumorigenesis—✦Menghan Wang, University of Kentucky

10:10 a.m. Using Area Under PSD to Detect the Tumor Heterogeneity Difference with Single Cell Data—✦Yian Chen, Moffitt Cancer Center & Research Institute; Jiannong Li, Moffitt Cancer Center & Research Institute; Inna Smalley, Moffitt Cancer Center & Research Institute; Michael J Schell, Moffitt Cancer Center & Research Institute; Keiran S Smalley, Moffitt Cancer Center & Research Institute

10:15 a.m. Identifying Direct Targets with Knockdown Experiment: An Adaptive Approach Detecting Strong Signals—✦Leying Guan, Stanford University

300 CC-West 209

SPEED: Statistical Epidemiology—Contributed

Section on Statistics in Epidemiology, Section on Teaching of Statistics in the Health Sciences, Section on Medical Devices and Diagnostics

Chair(s): Jimmy Efird, University of Newcastle

8:35 a.m. Meta-Analysis of the Difference of Medians—✦Sean McGrath, McGill University; Andrea Benedetti, Respiratory Epidemiology and Clinical Research Unit, McGill University Health Centre; Russell Steele, McGill University

8:40 a.m. Model Validation of Time-To-Event Analyzes via the Concordance Statistic—✦Samantha-Jo Caetano, McMaster University

8:45 a.m. A Comparative Longitudinal Study of the Distributions of Observed Versus Estimated Untreated Natural Blood Pressures—✦Saryet Kucukemiroglu

8:50 a.m. A Comparison of Algorithm Development Methods for Advanced Stage ER+/HER2- Breast Cancer—✦Ruihua Yin, HealthCore, LLC; Daniel C Beachler, HealthCore, Inc.; Stephan Lanes, HealthCore, Inc.; Kelsey Gangemi, HealthCore, Inc.; Daina Esposito, HealthCore, Inc.; Cynthia de Luise, Pfizer, Inc.

8:55 a.m. Meta-Analysis of Depression on the Risk of Fracture and Bone Loss in Prospective Cohort Studies—✦Qing Wu, University of Nevada, Las Vegas; Baowen Liu, University of Nevada, Las Vegas; Sajib Tonmoy, University of Nevada, Las Vegas

9:00 a.m. Expected Versus Observed Effects on Conditional Probability for Clinical Trial Futility Assessment—✦Zhibao Mi, VA CSPCC Perry Point; Kelsey A.L. Alexovitz, VA Cooperative Studies Program Coordinating Center; Xiaoli Lu, VA Cooperative Studies Program Coordinating Center; Kousick Biswas, VA Cooperative Studies Program Coordinating Center; Joseph F Collins, VA Cooperative Studies Program Coordinating Center

9:05 a.m. Logistic Regression with a Right-Skewed Exposure Variable Measured in Pools and Subject to Errors—✦Dane R Van Domelen, Rollins School of Public Health, Emory University; Emily M Mitchell, Agency for Healthcare Research and Quality; Enrique F Schisterman, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Neil Perkins, DIPHR/NICHD/NIH; Robert Lyles, Emory University

9:10 a.m. Invalid Statistical Inference Due to Social Network Dependence—✦Youjin Lee, Johns Hopkins School of Public Health; Elizabeth Ogburn, Johns Hopkins School of Public Health

9:15 a.m. Compatible Estimates for the Risk Ratio, Odds Ratio, and Risk Difference—✦Charles Rose, CDC

9:20 a.m. A Joint Model of Opioid Treatment Admissions and Deaths for Adults and Adolescents in Ohio Counties—✦David Kline, Ohio State University; Staci Hepler, Wake Forest University

9:30 a.m. A Comparison of Some Propensity Score Methods—✦Yuping Wu, Cleveland State University; Amgad Mohammed Alajlan, Cleveland State University

9:35 a.m. Comparison of Group Testing Algorithms for Clustered Data—✦Ana Best, NIH NCI DCEG Biostatistics Branch; Paul S Albert, National Cancer Institute; Yaakov Malinovsky, University of Maryland Baltimore County Dept. of Mathematics and Statistics

9:40 a.m. Incorporating Genetic Network into Case-Control Association Studies with High-Dimensional DNA Methylation Data—✦Hokeun Sun, Pusan National University

9:45 a.m. Application of External Concordance Method—✦Wenliang Yao, Astrazeneca; Pralay Mukhopadhyay, Astrazeneca

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

9:50 a.m. Estimating Memory Decline Among Nondemented Older Adults—✦Wenzhu Mowrey, Albert Einstein College of Medicine; Ellen Grober, Albert Einstein College of Medicine; Molly E Zimmerman, Albert Einstein College of Medicine; Mindy J Katz, Albert Einstein College of Medicine; Charles B Hall, Albert Einstein College of Medicine; Martin J Sliwinski, Pennsylvania State University; Richard B Lipton, Albert Einstein College of Medicine

9:55 a.m. A Probabilistic Linkage Approach for Combining VA and State Prescription Drug Databases for Evaluating Veterans' Receipt of Long Term Opioid Therapy Across Multiple Systems—✦Larry Cook, University of Utah; Tess A Gilbert, HSR&D Center to Improve Veteran Involvement in Care ; Kathleen F Carlson, HSR&D Center to Improve Veteran Involvement in Care

10:00 a.m. Application of a Method for Identifying Disease Subtypes That Are Etiologically Heterogeneous—✦Emily Zabor, Memorial Sloan Kettering Cancer Center; Colin B Begg, Memorial Sloan Kettering Cancer Center

301 CC-West 213

SPEED: Statistics for Biopharmaceutical Studies—Contributed

Biopharmaceutical Section, Section on Bayesian Statistical Science

Chair(s): Michael M. Hoffman, Princess Margaret Cancer Centre/ University of Toronto

8:35 a.m. Probabilistic Modeling of Sleep and Awake States in Alzheimer's Disease—✦Cici Bauer, Pfizer, Inc; Charmaine Demanuele, Pfizer, Inc. ; Dmitri Volfson, Pfizer

8:40 a.m. Integrative Statistical Analysis Pipeline for RNA-Seq and NanoString with Application to Gene Expression Data of Cancer Patients—✦Jeea Choi, Novartis Pharmaceuticals; Catarina D. Campbell, Novartis Institutes for BioMedical Research; Xiaoshan Wang, Novartis Pharmaceuticals; He Wei, Novartis Pharmaceuticals; Robinson Douglas, Novartis Pharmaceuticals; Stephane Wong, Novartis Pharmaceuticals; Bin Fu, Novartis Pharmaceuticals; Rebecca Leary, Novartis Institutes for BioMedical Research; Kavitha Venkatesan, Novartis Institutes for BioMedical Research; Ying A Wang, Novartis Pharmaceuticals

8:45 a.m. Bridging Information Between Dose-Response Curves Across Populations in Early Phase Clinical Trials—✦Moreno Ursino, Inserm DR PA 6

8:50 a.m. A Simultaneous PK/PD Model for Muscle Relaxant Using Muscle Twitch Counts—✦Elizabeth Sigworth, Matthew S Shotwell, Vanderbilt University

8:55 a.m. STEPDOWN TESTING PROCEDURES for DOSE FINDING STUDY with ADAPTIVE DESIGN—✦Gang Jia, Merck & Co.

9:00 a.m. Conditional Power Calculation for the Interim Monitoring of Cluster-Randomized Trials with Interval-Censored Endpoints—✦Kaitlyn Cook, Harvard University; Rui Wang, Harvard Pilgrim HealthCare Institute

9:05 a.m. Explore Modified Organ Dysfunction Score System to Improve the Prediction of Survival—✦Grace Zhang, GSK

9:10 a.m. Discovering Biomarkers Jointly Modeled with Multiple Efficacy Variables in Early Phase Clinical Trials—✦Danni Yu, Eli Lilly and Company

9:15 a.m. Extended Rank Tests for Analyzing Recurrent Event Data—✦Qiang Zhao, ; Mark Chang, Veristat; Michael LaValley, Boston University; Joseph M. Massaro, Boston University; Bin Zhang, Seqirus; Kathryn Lunetta, Boston University

9:20 a.m. A Study in the Use of Unsupervised Random Forest in the Analysis of Data Sets Composed of Categorical Variables/Features—✦Nelson Lee Afanador, Merck; Richard Baumgartner, Merck; Dai Feng, Merck

9:30 a.m. A Statistical Evaluation of Cardiovascular Measurements Collected via Mobile Health Technology and Traditional Tools—✦Qinlei Huang, Merck; Lori Mixson, Merck

9:35 a.m. Method for Evaluating Longitudinal Follow-Up Frequency: Application to Dementia Research—✦Leah Suttner, University of Pennsylvania; Sharon X Xie, University of Pennsylvania

9:40 a.m. Performance Comparison of Post-Hoc Subgroup Search Algorithms for Clinical Trials—✦Victor Talisa, University of Pittsburgh; (Joyce) Chung-Chou H. Chang, University of Pittsburgh

9:45 a.m. Relationship Between ORR, PFS and OS in Patients Treated with Anti-PD1/PDL1 Therapies—✦Jiabu Ye, AstraZeneca; Pralay Mukhopadhyay, Astrazeneca; Xiang Ji, AstraZeneca

9:50 a.m. Real-Time Study Milestone Projection in Clinical Trials with Time-To-Event Endpoints—✦Yanping Liu, Merck & Co.; Gang Jia, Merck & Co.

9:55 a.m. Sensitivity to Infusion and Blood Draw Time Recording Errors in Pharmacokinetic Modeling—✦Hannah Weeks, Vanderbilt University; Matthew S Shotwell, Vanderbilt University

10:00 a.m. A Testing Paradigm for Earl Biomedical Research with Many Correlated Tests—✦Robert Montgomery, ; Jonathan D Mahnken, University of Kansas Medical Center

10:05 a.m. Tobit Regression for Modeling Mean Survival Time Using Data Subject to Multiple Sources of Censoring—✦Qi Gong, Gilead; Douglas E. Schaubel, University of Michigan, Ann Arbor

Contributed Sessions 8:30 a.m.—10:20 a.m.

302 CC-West 223

■ Omics I—Contributed

Biometrics Section

Chair(s): Inyoung Kim, Virginia Tech

8:35 a.m. A Bayesian Hidden Markov Model for Detecting

Differentially Methylated Regions—✦Tieming Ji, University of Missouri at Columbia

8:50 a.m. Genetic Association Analysis of Copy Number Variation via a Bayesian Procedure in Whole Genome Sequencing—✦Yu-Chung Wei, Feng Chia University, TAIWAN

9:05 a.m. A Hidden Markov Modeling Approach for Identifying tumor Subclones in Next-Generation Sequencing Studies—✦Hyoyoung Choo-Wosoba, NCI/DCEG/BB; Paul S Albert, National Cancer Institute; Bin Zhu, NIH/NCI

9:20 a.m. The Most Informative Spacing Statistic Identifies Biologically Relevant Patterns in Transcript Level Distributions—✦Stanley Pounds, St. Jude Children's Research Hospital

9:35 a.m. A Multi-Step Classifier Addressing Cohort Heterogeneity Improves Performance of Prognostic Biomarkers in Three Cancer Types—✦Ellis Patrick, University of Sydney; Samuel Mueller, The University of Sydney; Jean Yee Hwa Yang, University of Sydney, Australia

9:50 a.m. Modeling Dynamics of V(D)J Recombination in T Cell Formation—✦Kingshuk Roy Choudhury, Duke University, Dept. of Biostatistics and Bioinformatics

10:05 a.m. Weighted Averages for Reconstructed Pathways: a Novel Method for Pathway Level Analysis of Gene Expression Profiles—Monnie McGee, Southern Methodist University; ✦Elizabeth McClellan, Metropolitan State University of Denver; Richard H Scheuermann, J Craig Venter Institute

303 CC-West 115

■ Patient-Centered Outcomes, Patient Preferences, and Patient Reports—Contributed

Health Policy Statistics Section

Chair(s): David Michael Vock, University of Minnesota

8:35 a.m. Personalization Through Uplift Modeling: Techniques and Business Applications—✦Victor Lo, Fidelity Investments

8:50 a.m. A Comprehensive Germ Cell Tumor Data Commons and Its Application in Risk Classification Model Validation—✦Bo Ci, ; Yang Xie, University of Texas Southwestern Medical Center ; Lindsay Frazier, Dana-Farber Cancer Institute; Matthew Murray, Cambridge University Hospitals; James Amatruda, University of Texas Southwestern Medical Center; Mark Krailo, University of Southern California; Samuel Volchenboum, University of Chicago; Bo Yao, University of Texas Southwestern Medical Center; Caihong Xia, Children's Oncology Group; Lin Xu, University of Texas Southwestern Medical Center; Danni Luo, University of Texas Southwestern Medical Center; Shin-Yi Lin, University of Texas Southwestern Medical Center

9:05 a.m. Experimental Design Issues in Choice Based Conjoint Applied to Patient Choice in Healthcare—✦Pallavi Chitturi, Temple University; Alexandra Carides, Temple University

9:20 a.m. Patient Satisfaction with Health Care and Its Association with Health Care Utilization Among Patients with Rheumatoid Arthritis (RA)—✦Chenghui Li, ; Nasim A Khan, University of Arkansas for Medical Sciences

9:35 a.m. Detection of Erroneous Observations in Biometric Data Using Heteroscedastic Regression—✦Zahraa Al-Sharea, University of Arkansas, Fayetteville; Avishek Chakraborty, University of Arkansas, Fayetteville; Mallik Rettiganti, UAMS, USA; Anthony Goudie, Arkansas Center for Health improvement, USA

9:50 a.m. How Much Is Too Much: Impact of Missing Data Rates in Patient Reported Outcomes Research—✦Katie L Kunze, Mayo Clinic; Paul J. Novotny, Mayo Clinic; Jeff A. Sloan, Mayo Clinic; Blake T. Langlais, Mayo Clinic; Amylou C. Dueck, Mayo Clinic

10:05 a.m. The Center for Biologics (CBER) Experience with Patient-Reported Outcomes (PROs) in Rare Diseases—✦Hussein Ezzeldin, The U.S. Food and Drug Administration; Megan Moncur, The U.S. Food and Drug Administration; Yuqun Abigail Luo, The U.S. Food and Drug Administration; Telba Irony, The U.S. Food and Drug Administration

304 CC-East 17

■ Clustering and Regression Analyzes—Contributed

International Statistical Institute

Chair(s): Roeland Beerten, Statistics Flanders

8:35 a.m. Model-Based Cluster Analysis and Outlier Detection—✦Cristina Tortora, San Jose State University; Antonio Punzo, University of Catania

8:50 a.m. Assisted Gene Expression-Based Clustering with AWNCut—✦Yang Li, Renmin University of China; Ruofan Bie, Renmin University of China; Sebastian J Teran Hidalgo, Yale University; Yichen Qin, University of Cincinnati; Mengyunn Wu, Yale University; Shuangge Ma, Yale University

9:05 a.m. Evaluating Equity Using Linear Quantile Mixed Effects Models—✦Kameryn Denaro, UC Irvine Teaching and Learning Research Center

9:20 a.m. A New Distribution-Free Method for Constructing Confidence Intervals for Quantiles—✦Chaitra Nagaraja, Fordham University; Haikady Nagaraja, Ohio State University

9:35 a.m. Meta-Analysis and the Estimation of Publication Bias—✦Ronnie Pingel, Uppsala University; Johan Lyhagen, Uppsala University

9:50 a.m. Robust Depth-Based Estimation of the Functional Autoregressive Model—✦Israel Martinez Hernandez, KAUST; Marc G Genton, King Abdullah University of Science and Technology; Graciela Gonzalez Farias, CIMAT

10:05 a.m. On Some Extensions of Cure Rate Models—✦Suvra Pal, University of Texas Arlington

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

305 CC-West 117

● New Nonparametric Methods for Functional Data—Contributed

Section on Nonparametric Statistics

Chair(s): Jeffrey Woo, University of Virginia

8:35 a.m. Testing for Generalized Scalar-On-Function Linear Models—✦Stephanie Chen, North Carolina State University; Luo Xiao, North Carolina State University; Ana-Maria Staicu, NC State University

8:50 a.m. M-Based Simultaneous Inference for Functional Data—✦Guanqun Cao, Auburn University; Nedret Billor, Auburn University; Italo Costa Lima, auburn university

9:05 a.m. On the Covariance Estimation and Principal Component Analysis for Spatially Dependent Functional Data—✦Haozhe Zhang, Iowa State University; Yehua Li, University of California, Riverside

9:20 a.m. Functional Regression Models with Highly Irregular Designs—✦Justin Petrovich, Pennsylvania State University; Matthew Reimherr, Pennsylvania State University; Carrie Daymont, Penn State Hershey Medical Center

9:35 a.m. Nonlinear Support Vector Machine for Multivariate Functional Data with Applications to fMRI and EEG Data Analysis—✦Zheye Yuan, Penn State Univ; Bing Li, The Pennsylvania State University

9:50 a.m. Adaptive Function-On-Scalar Smoothing Elastic Net—✦Ardalan Mirshani, The Pennsylvania State University; Matthew Reimherr, Pennsylvania State University

10:05 a.m. Sparse Functional Principal Component Analysis in a New Regression Framework—✦Yunlong Nie, Simon Fraser University; Jiguo Cao, Simon Fraser University

306 CC-West 119

Disease Prediction—Contributed

Section on Statistics in Epidemiology

Chair(s): Brenda Kurland, University of Pittsburgh

8:35 a.m. Penalty-Based Outlier Detection and Prevalence Smoothing for Regional Childhood Obesity Surveillance from Electronic Health Records—✦Yingqi Zhao, Fred Hutchinson Cancer Research Center; Young-Geun Choi, Fred Hutchinson Cancer Research Center; Larry P Hanrahan, University of Wisconsin-Madison; Derek Norton, University of Wisconsin-Madison

8:50 a.m. Uncertainty Estimates for Population Attributable Fractions—✦Breda Munoz, RTI International

9:05 a.m. Age-Related Variations in Cancer Mortality Rates—✦Keshav Pokhrel, University of Michigan-Dearborn

9:20 a.m. Grouping Trajectories of Unbalanced Longitudinal Data: a Comparison Between Growth Curve Mixture Models and Clustering BLUPs from Mixed Effects Models—✦Md Hossain, Nemours Biomedical Research, A.I. DuPont Children's Hospital; Benjamin Leiby, Thomas Jefferson University

9:35 a.m. Covariate-Driven Non-Stationary Spatial Models in Public Health—✦Pavel Chernyavskiy, National Cancer Institute; Mark P Little, National Cancer Institute; Philip S Rosenberg, National Cancer Institute

9:50 a.m. A Statistical Approach Based on NHANES 1963-2016 Data to Track Severe Obesity in Children Aged 2-20 Years—✦Rong Wei, National Center for Health Statistics; David S Freedman, Division of Nutrition, Physical Activity and Obesity, CDC

10:05 a.m. Floor Discussion

307 CC-West 221

● Clinical Trial Design-3—Contributed

Biopharmaceutical Section

Chair(s): Josephine Asafu-Adjei

8:35 a.m. Social Media and Clinical Research—✦Darcy Hille, Merck & Company Inc; T. Ceesay, Merck

8:50 a.m. Incorporating Historical Information into the Analysis of Clinical Trials- a Case Study—✦Guochen Song, Biogen; Yiqing Tian, Q2 Sulotions; John Zhong, Biogen; Stacy Lindborg, Biogen Idec

9:05 a.m. Systematic Review of Test/Estimation Approach in Comparative Cancer Clinical Studies with Time-To-Event Outcomes—✦Miki Horiguchi, Kitasato University; Hajime Uno, Dana Farber Cancer Institute

9:20 a.m. Design Considerations in Clinical Trials with Cure Rate Survival Data: a Case Study in Oncology—✦Grace Liu, Johnson & Johnson; Steven Sun, J&J; Tzu-min Yhe, janssen pharmaceuticals; Tianmeng Lyu, University of Minnesota; Rao Sudhakar, janssen pharmaceuticals; Bruce Xue, Johnson & Johnson China

9:35 a.m. Multiplicity Adjustment for Multiple Endpoints Testing in Overall and Subgroup Populations—✦Libo Sun, Janssen Pharmaceutical R&D; Grace Liu, Johnson & Johnson; Rui Qin, Janssen Pharmaceutical R&D

9:50 a.m. Statistical Leadership in Clinical Trials: Opportunities from the Draft Estimand Guidance—✦Jonathan Siegel, Bayer HealthCare Pharmaceuticals Inc.

10:05 a.m. Safety Analysis of Clinical Trials in NDA Submissions—✦Linyun Zhou, Takeda Global Research & Development

308 CC-West 304/305

● Adaptive Design - 2—Contributed

Biopharmaceutical Section

Chair(s): John Scott

8:35 a.m. Complexity of Implementing Sample Size Re-Estimation (SSR) in Oncology Trials—✦Alicia Zhang, Amgen; Yuqi Chen, Amgen; Chris Holland, Amgen

8:50 a.m. Desirability Functions for Evaluating Clinical Trial Design Quality—✦Priscilla K Yen, UCLA; Weng Kee Wong, UCLA

9:05 a.m. A Confirmatory Basket Trial Design for Multiple Tumor Types Based on Conditional Power—✦Huiling Li, Jianming Wang, Celgene Corporation; Yeongjin Gwon, University of Connecticut; Xiaolong Luo, Celgene Corporation

9:20 a.m. A Model-Based Conditional Power Assessment for Decision Making in Randomized Controlled Trial Studies—✦Baiming Zou, University of Florida; Jianwen Cai, University of North Carolina; Gary G. Koch, University of North Carolina; Haibo Zhou, University of North Carolina; Fei Zou, University of North Carolina at Chapel Hill

9:35 a.m. A Case Study of a Bayesian Adaptive Dose-Finding Phase 2 Trial Design Using Go/No-Go Criteria and Adaptive Randomization—✦Ye Ting Du, ; James Bolognese, Cytel Inc

9:50 a.m. Basket Trials Design and Analysis in Non-Oncology Therapeutical Areas—✦Binbing Yu, MedImmune/AstraZeneca; Jingjing Chen, Takeda Pharmaceuticals; Dewei She, MedImmune/AstraZeneca; Jianliang Zhang, Medimmune, LLC

10:05 a.m. Informative Grouping for Regression—✦Juexin Lin, University of South Carolina; Dewei Wang, University of South Carolina

309 CC-West 203

Bayesian Modeling in Physical Sciences and Engineering—Contributed

Section on Bayesian Statistical Science

Chair(s): Ivan Jeliazkov, University of California - Irvine

8:35 a.m. Bayesian Estimation of Pollutant Emissions Using Multiscale Data—✦Cosmin Safta, Sandia National Laboratories; Ray Bambha, Sandia National Laboratories; Hope Michelsen, Sandia National Laboratories

8:50 a.m. Predicting the Count of Tropical Storms with Bayesian Model Averaging—✦Joyee Ghosh, University of Iowa

9:05 a.m. Neutron Capture Cross Sections for Unstable Nuclei with Surrogate Reaction Data—✦Kassie Fronczyk, Lawrence Livermore National Laboratory; Jutta Escher, Lawrence Livermore National Laboratory

9:20 a.m. Learning Semiparametric Regression with Missing Covariates Using Gaussian Processes Models—✦Xiaojing Wang, University of Connecticut; Abhishek Bishoyi, Selective Insurance; Dipak Kumar Dey, University of Connecticut

9:35 a.m. BAYESMETAB: TREATMENT of MISSING VALUES in METABOLOMIC STUDIES USING a BAYESIAN MODELING APPROACH—✦Jasmit Shah, Aga Khan University Hospital; Guy Brock, Ohio State University College of Medicine; Jeremy Gaskins, University of Louisville

9:50 a.m. Floor Discussion

310 CC-West 111

Topics of Variable Selection—Contributed

Section on Statistical Learning and Data Science, SSC

Chair(s): Haocheng Li, Hoffmann-La Roche Limited (Roche Canada)

8:35 a.m. Scrutiny of Inference on Generalized Linear Models with High-Dimensional Covariates—✦Lu Xia, University of Michigan; Bin Nan, University of California, Irvine; Yi Li, University of Michigan

8:50 a.m. Using Statistical Approaches to Stratify Hospital-Readmission Risk After Hip Fracture—✦Qingqing Dai, Oklahoma State University; Zhuqi Miao, Oklahoma State University; Lan Zhu, Oklahoma State University

9:05 a.m. Feature Selection in L0 Norm: a Viable Approach—✦Ana Maria Kenney, Pennsylvania State University; Francesca Chiaromonte, The Pennsylvania State University; Giovanni Felici, IIASI CNR

9:20 a.m. Projection-Based Inference for High-Dimensional Linear Models—✦Sangyoon Yi, Texas A&M Univ; Xianyang Zhang, Texas A&M University

9:35 a.m. Robust Group LASSO Methods—✦Kristin Lilly, Columbus State University; Nedret Billor, Auburn University

9:50 a.m. Nonlinear Variable Selection Using Deep Neural Network—✦Yao Chen, Purdue University; Faming Liang, Purdue University; Xiao Wang , Purdue University

10:05 a.m. Budget-Constrained Feature Selection for Binary Classification: a Neyman-Pearson Approach—✦Yiling Chen, University of California, Los Angeles; Xin Tong, University of Southern California; Jingyi Li, University of California, Los Angeles

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

311 CC-West 114

Statistical Models in Ecology—Contributed

Section on Statistics and the Environment

Chair(s): Henry Scharf, Colorado State University

8:35 a.m. Survey Design Tools and Considerations for Sustaining Large-Scale Monitoring Programs Aimed to Characterize Species Distributions—✦Katharine Banner, Montana State University; Kathryn Irvine, US Geological Survey; Thomas Rodhouse, National Park Service; Andrea Litt, Montana State University

8:50 a.m. Spatio-Temporally Explicit Model Averaging for Forecasting of Alaskan Groundfish Catch—✦Hannah Correia, Auburn University

9:05 a.m. Estimating Behavioral Transition Probabilities of Greater White-Fronted Geese Using Non-Homogenous Markov Models—✦Toryn Schafer, University of Missouri; Christopher K. Wikle, University of Missouri; Mitchell Weegman, University of Missouri

9:20 a.m. Functional Analysis of Spatial Aggregation Regions of Jeffrey Pine Beetle-Attack Within the Lake Tahoe Basin—✦Ekaterina Smirnova, University of Montana; Omid Khormali, University of Montana; Joel M Egan, Forest Health Protection

9:35 a.m. Machine Learning Methods for Animal Movement—✦Dhanushi A Wijeyakulasuriya, Pennsylvania State University; Ephraim Hanks, The Pennsylvania State University; Benjamin Shaby, Penn State University

9:50 a.m. A Dynamic Individual-Based Model of Ant Interaction Events—✦Nathan Wikle, ; Ephraim Hanks, The Pennsylvania State University; David Hughes, Pennsylvania State University

10:05 a.m. 2018 National Bald Eagle Dual-Frame Survey Using an Eroding Nest List Frame—✦Mark Otto, Fish and Wildlife Service

312 CC-West 218

Recent Methods Development for Sequence-Based Association Studies—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Dror Berel, Fred Hutch

8:35 a.m. Analysis in Case-Control Sequencing Association Studies with Different Sequencing Depths—✦Sixing Chen, Harvard University; Xihong Lin, Harvard University

8:50 a.m. Testing Nonlinear Gene-Environment Interaction Through Varying Coefficient and Linear Mixed Models—Zhengyang Zhou, Southern Methodist University; ✦Chao Xing, University of Texas Southwestern Medical Center; Hung-Chih Ku, DePaul University

9:05 a.m. Identifying Individual Risk Rare Variants Using Structure-Guided Local Tests—✦Rachel Marceau, North Carolina State University; Wenbin Lu, North Carolina State University; Daniel Rotroff, North Carolina State University; Michael Wagner, UNC Chapel Hill; John Buse, UNC Chapel Hill; Jung-Ying Tzeng, North Carolina State University; Melaine Kuenemann, North Carolina State University; Denis Fourches, North Carolina State University; Alison Motsinger-Reif, North Carolina State University

9:20 a.m. Robust Score Tests with Missing Data in Genomics Studies—✦Kin Yau Wong, Hong Kong Polytechnic University; Donglin Zeng, UNC Chapel Hill; Danyu Lin, University of North Carolina

9:35 a.m. Using Gene Genealogies to Localize Rare Variants Associated with Complex Traits in Diploid Populations—✦Charith Bhagya Karunarathna, Simon Fraser University; Jinko Graham, Simon Fraser University

9:50 a.m. Integrating External Controls Improves Power for Genetic Association Testing—✦Yatong Li, University of Michigan; Seunggeun Lee, University of Michigan

10:05 a.m. Methods and Study Design for Integrating External Controls with Allele Frequencies—✦Megan Sorenson, University of Colorado Denver; Audrey Hendricks, University of Colorado - Denver

313 CC-West 204

Statistical Models in Survey Sampling and Analysis—Contributed

Survey Research Methods Section

Chair(s): Samantha Robinson, University of Arkansas

8:35 a.m. Estimating Prediction Error for Complex Samples—✦Andrew James Holbrook, UC Irvine; Daniel L. Gillen, University of California, Irvine; Thomas Lumley, University of Auckland

8:50 a.m. Cluster-Level Inference Under Element Sampling—✦Danhyang Lee, Iowa State University; Jae-kwang Kim, Iowa State University; Chris Skinner, London School of Economics and Political Science

9:05 a.m. Applications of the Parametric Approach to Estimation of Totals and Means for Complex Survey Data in the Presence of Full Response—✦Ismael Flores Cervantes, Westat

9:20 a.m. Using Survival Analysis to Address Attrition and Vacancy Rates at the Food Safety and Inspection Service—✦Sarah McMillan, Food Safety and Inspection Service / USDA; Anna Frey, Food Safety and Inspection Service / USDA

9:35 a.m. Estimation of Latent Interaction with Ordinal Indicators Using Frequentist Method—✦Fan Wallentin, Uppsala University

9:50 a.m. Floor Discussion

Contributed Poster Presentations 9:25 a.m.—10:10 a.m.

314 CC- West Hall B

SPEED: Missing Survey Data: Analysis, Imputation, Design and Prevention—Contributed

Survey Research Methods Section, Government Statistics Section

Chair(s): Paul McNicholas, McMaster University

Survey Research Methods Section

1 **Estimating Survey Attrition Phases Using Change-Point Models**—✦Camille Hochheimer, Virginia Commonwealth University; Roy T Sabo, Virginia Commonwealth University; Alex H Krist, Virginia Commonwealth University

Government Statistics Section

2 **Census Efforts to Reduce the Undercount of Young Children**—✦Gina Walejko, U.S. Census Bureau; Scott Konicki, U.S. Census Bureau

Survey Research Methods Section

3 **Is There a 'safe Area' Where the Nonresponse Rate Has Only a Modest Effect on Bias Despite Non-Ignorable Nonresponse?**—✦Dan Hedlin, Stockholm University

4 **Design-Based Alternative Calibration Weighting Under Nonresponse in Survey Sampling**—✦Per Andersson, Stockholm University

5 **A Simulation Study to Evaluate How Sample Weight Adjustment with Prevalence Calibration for the National Health and Nutrition Examination Survey (NHANES) Affects Nonresponse Bias**—✦Te-Ching Chen, CDC/NCHS; Jennifer Parker, CDC/NCHS; Tala Fakhouri, CDC/NCHS

6 **Degrees of Freedom in Multiple Imputation: The Original vs. The Adjusted in 2015 National Hospital Ambulatory Medical Care Survey**—✦Qiyuan Pan, CDC/NCHS/DHCS; Rong Wei, National Center for Health Statistics

7 **Nonresponse Bias Studies for Department of Defense Surveys**—✦Eric Falk, Department of Defense/Office of People Analytics

8 **Exploring Reminder Calls Intended to Increase Interviewer Compliance with Data Collection Protocols**—✦Amanda Nagle, U.S. Census Bureau; Kevin Tolliver, U.S. Census Bureau

9 **Effect of the Survey Name on Response Rates and Survey Estimates**—✦David McGrath, Department of Defense Office of People Analytics

10 **Early Bird Gets the Worm? Effects of Differential Incentives on Mode Choice and Response Rates**—✦Patricia LeBaron, RTI International; Nathaniel Taylor, RTI International; Leah Fiacco, RTI International; Melissa Helton, RTI International; Amy Henes, RTI International; Stephen King, RTI International

11 **Nonresponse Bias Analysis for the Medicare Current Beneficiary Survey**—✦Kirk Wolter, NORC at the University of Chicago; Ying Li, NORC at the University of Chicago; Whitney Murphy, NORC at the University of Chicago

12 **Using Predictive Modeling in Survey Methodology to Identify Panel Nonresponse**—✦Bernd Weiss, GESIS - Leibniz-Institute for the Social Sciences; Jan-Philipp Kolb, GESIS - Leibniz-Institute for the Social Sciences; Christoph Kern, University of Mannheim

13 **Does Sequence of Imputed Variables Matter in Hot Deck Imputation for Large-Scale Complex Survey Data?**—✦Amang Sukasih, RTI International; Peter Frechtel, RTI International; Karol Krotki, RTI International

14 **Tree-Based Doubly-Robust Nonparametric Multiple Imputation**—✦Darryl Creel

15 **Multiple Imputation Methods Addressing Planned Missingness in a Multi-Phase Survey**—✦Irina Bondarenko, University of Michigan; Yun Li, University of Michigan; Paul Imbriano, University of Michigan

16 **Outcomes of Suicide Risk Assessment and Safety Planning in a Longitudinal Mixed Mode Survey of Patients with Complex Psychiatric Disorders**—✦Danna Moore, Washington State University-Social & Economic Science Research Center; John Fortney, University of Washington, School of Medicine; Dan Vakoch, Washington State Univesity-Social and Economic Sciences Research Center

17 **"You're Not from Around Here, Are You?": How Regional Accent Affects Survey Cooperation**—✦Matt Jans, ICF; James Dayton, ICF; Matt McDonough, ICF

18 **Imputation of Small Number of New Questions in the Large Survey**—✦Di Xiong, UCLA SPH; Yan Wang, Field School of Public Health, UCLA; Honghu Liu, UCLA

315 CC- West Hall B

SPEED: Biopharmaceutical Applications: Trials, Biomarkers, and Enpoint Validation—Contributed

Biopharmaceutical Section

Chair(s): Paul McNicholas, McMaster University

Biopharmaceutical Section

21 **Subgroup Mixable Exact Simultaneous Confidence Intervals for Logical Selection of a CDx Cut-Point**—✦Jason Hsu, Ohio State University

22 **A Location-Adjusted Approach to the Covariate-Adjusted Response-Adaptive Allocation Design in Multi-Center Trials**—✦Brian S Di Pace, Virginia Commonwealth University; Roy T Sabo, Virginia Commonwealth University; David C. Wheeler, Virginia Commonwealth University

23 **The Subgroup Mixable Estimation (SME) Principle, with Application to Binary Outcomes**—✦Hui-Min Lin, Takeda Pharmaceuticals International Co.

24 **Sample Size Calculation for Pilot Studies**—✦Chi-Hong Tseng, UCLA; Danielle SIM, UCLA

25 **Determine Appropriate Sample Size for a Biomarker Signature Discovery Problem Using Penalized Regression**—✦Xiang Li, Statistics and Decision Sciences, Janssen Research & Development, LLC; Hong Tian, Janssen Pharmaceutical; Liang Xiu, Janssen

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Research & Development, LLC

26 **Statistical Considerations for Using Multiple Databases to Build a Biomarker Probability Tool**—✦Feng Gao, ; Shijia Bian, Biogen; Wenting Wang, Biogen; Nancy Maserejian, Biogen; Judith Jaeger, Albert Einstein College of Medicine; Robert Robert Engle , Biogen; Timothy Swan, Biogen; James McIninch, Alnylam Pharmaceuticals; Feng Gao, Biogen

27 **Statistical Issues in Cardiac Biomarker: Data from the HESI-Sponsored Consortium**—✦Alan Chiang, Eli Lilly and Company

28 **Phase I Designs That Allow for Uncertainty in the Attribution of Adverse Events**—✦Alexia Iasonos, Memorial Sloan Kettering Cancer Center; John O'Quigley, Universit'e Pierre et Marie Curie

29 **Statistical Modeling of a Clinical Bridging Study in an Enrichment Biomarker Trial When Baseline Samples Are Unavailable**—✦Qui Tran, Amgen; Chris Holland, Amgen; Cassie Dong, Amgen

30 **A Bayesian Analysis of Small N Sequential Multiple Assignment Randomized Trials (SnSMARTs)**—✦Boxian Wei, University of Michigan, Ann Arbor; Kelley M Kidwell, University of Michigan; Thomas M Braun, University of Michigan; Roy N Tamura, University of South Florida

31 **Bayesian Non-Parametric Models in a Phase II Clinical Trial with Survival Endpoint**—✦Jack Shiansong Li, Celgene Corporation; Joe Weichung Shih, Rutgers University

32 **Pre-Specified Bias Evaluation of ECG Measurements for Assay Sensitivity Assessment**—✦Xiaoli Hou, Merck; Nancy Kim, Merck; Wei Gao, Merck; Leticia Arrington, Merck; Kajal Larson, Merck

33 **Improvements to the Escalation with Overdose Control Design and a Comparison with the Restricted Continual Reassessment Method**—✦Lingyun Ji, University of Southern California; Richard Sposto, University of Southern California; Juan Pablo Lewinger, University of Southern California; Mark Krailo, University of Southern California; David Conti, University of Southern California; Susan Groshen, University of Southern California; Shahab Asgharzadeh, University of Southern California

34 **Statistical Approaches for Assessing the Utility of Urinary Glycosaminoglycans as a Surrogate Endpoint in Clinical Trials**—✦Di Xiao, The Food and Drug Adminstration; Yeh-Fong Chen, US FDA; Min Min, U.S. Food and Drug Administration, CDER/OTS/OB

35 **A Novel Bayesian Model for Assessing Surrogate Endpoint**—✦Cheng Zheng, Novartis Pharmaceuticals; Simon Wandel, Novartis Pharmaceuticals; Aiesha Zia, Novartis Pharmaceuticals; Jagannath Ghosh, Novartis Pharmaceuticals; Nathalie Fretault, Novartis Pharmaceuticals; Kalyanee Viraswami Appanna, Novartis Pharmaceuticals

36 **Optimal Covariate Weighting to Identify Differentially Expressed Biomarker in Daily Disposable Contact Lenses**—✦Youssef Toubouti, J&J Vision Care Inc.; Mohamad Shakil Hasan, Oxford Life Science

37 **Statistical Considerations for Bridging Studies in Precision Medicine Programs with Drug-Device Co-Development**—✦Shunguang Wang, Novartis Analytics; Meijuan Li, FDA; Xiaohong Li, Novartis Analytics; Jincao Wu, CDRH/US. Food and Drug Adminstration; Robinson Douglas, Novartis Pharmaceuticals

38 **Simultaneous Confidence Intervals for Assessing SNP Effects on Treatment Efficacy**—✦Yushi Liu, GSS, Eli Lilly and Company

39 **Flexible Methods for Accounting for Distributional Misspecification in Response-Adaptive Clinical Trials**—✦Victoria C Garcia, VCU; Adam Sima, Virginia Commonwealth University

Special Presentation 10:30 a.m.—12:20 p.m.

316 CC-West Ballroom A

Late Breaking Session: Statistical Issues in Application of Machine Learning to High Stakes Decisions—Invited

JSM Partner Societies

Chair(s): Katherine Ensor, Rice University

10:35 a.m. Data Governance and Ethics of Algorithmic Decision-Making—✦Sofia C Olhede, University College London

10:55 a.m. Interpretable Machine Learning for High-Stakes Decisions—✦Cynthia Rudin, Duke University

11:15 a.m. Machine Learning to Evaluate Forensic Evidence—✦Alicia Carriquiry, Iowa State University

11:35 a.m. A Standardized Framework to Generate and Evaluate Patient-level Prediction Models Using Observational Healthcare Data—✦Marc Suchard, UCLA

11:55 a.m. Floor Discussion

Invited Sessions 10:30 a.m.—12:20 p.m.

317 CC-West 301

■ ● The Future of Spatial and Spatio-Temporal Statistics: Perspectives for the Next Generation of Leaders—Invited

Section on Statistics and the Environment, Section on Bayesian Statistical Science, The International Environmetrics Society

Organizer(s): Christopher K. Wikle, University of Missouri

Chair(s): Christopher K. Wikle, University of Missouri

10:35 a.m. How Application Will Drive Future Spatial and Spatio-Temporal Research—✦Alan E Gelfand, Duke University

TUESDAY

11:00 a.m. Traversing the Space-Time Cube—✦Noel Cressie, University of Wollongong

11:25 a.m. Horse for Courses: Empirical Vs Mechanistic Modeling for Spatio-Temporal Point Process Data—✦Peter John Diggle, Lancaster University

11:50 a.m. Disc: Jim Zidek, University of British Columbia

12:15 p.m. Floor Discussion

318 CC-West 211

■ ● Advances on the Analysis of Single-Cell Sequencing Data—Invited

WNAR, Section on Statistics in Genomics and Genetics, International Chinese Statistical Association, SSC

Organizer(s): Lingling An, University of Arizona

Chair(s): Lingling An, University of Arizona

10:35 a.m. Statistical Methods for Single-Cell RNA-Seq in Studies of Mammalian Development—✦Christina Kendziorski, University of Wisconsin - Madison; Zijian Wang, University of Wisconsin - Madison; Ron Stewart, Morgridge Institute for Research; Chris Barry, Morgridge Institute for Research; Li-Fang Chu, Morgridge Institute for Research

11:00 a.m. General and Flexible Methods for Signal Extraction from Single-Cell RNA-Seq Data—✦Davide Risso, Weill Cornell Medicine

11:25 a.m. Multi-Sample Differential Expression Analysis of RNA-Seq Single-Cell Data—✦George Tseng, University of Pittsburgh; Li Zhu, University of Pittsburgh; An-Shun Tai, National Tsing Hua University; Wei Chen, University of Pittsburgh

11:50 a.m. Modeling Allele-Specific Gene Expression by Single-Cell RNA Sequencing—✦Yuchao Jiang, University of North Carolina, Chapel Hill; Nancy Zhang, University of Pennsylvania; Mingyao Li, University of Pennsylvania

12:15 p.m. Floor Discussion

319 CC-West 120

Highlights from Bayesian Analysis—Invited

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): Bruno Sanso, University of California Santa Cruz

Chair(s): Murali Haran, Penn State University

10:35 a.m. Bayesian Spectral Modeling for Multivariate Spatial Distributions of Elemental Concentrations in Soil—✦Maria Antonia Terres, The Climate Corporation; Montserrat Fuentes, Virginia Commonwealth University; Dean Hesterberg, North Carolina State University; Matthew Polizzotto, North Carolina State University

11:00 a.m. Highlights from Bayesian Analysis—✦Christopher C Drovandi, Queensland University of Technology; Kerrie Mengersen, Queensland University of Technology; Michael Evans, University of Toronto; David J Nott, National University of Singapore

11:25 a.m. Variational Hamiltonian Monte Carlo via Score Matching—✦Cheng Zhang, Fred Hutchinson Cancer Research Center

11:50 a.m. Sequential Bayesian Analysis of Multivariate Count Data—✦Tevfik Aktekin , University of New Hampshire; Nick Polson, University of Chicago ; Refik Soyer , George Washington University

12:15 p.m. Floor Discussion

320 CC-West 118

■ ● Practical and Realistic Variable Selection Methods—Invited

IMS, Section on Nonparametric Statistics, Section on Statistical Learning and Data Science, SSC

Organizer(s): Linda Zhao, University of Pennsylvania

Chair(s): Sayan Mukherjee, Duke University

10:35 a.m. Generalized CP and the Bootstrap for Variable Selection in Moderate or High-Dimensional Data—Lawrence D Brown, University of Pennsylvania; ✦Junhui Cai, University of Pennsylvania; Linda Zhao, University of Pennsylvania

11:05 a.m. Multidimensional Monotonicity Discovery with MBART—✦Edward George, Wharton, University of Pennsylvania; Robert McCulloch, Arizona State University; Hugh Chipman, Acadia University; Tom Shively, University of Texas at Austin

11:35 a.m. Statistical Inference for Online Learning and Stochastic Approximation via Hierarchical Incremental Gradient Descent—✦Weijie Su, University of Pennsylvania; Yuancheng Zhu, University of Pennsylvania

12:05 p.m. Floor Discussion

321 CC-West 306

■ Detecting Structural Change in Complex Data—Invited

International Chinese Statistical Association, WNAR, IMS

Organizer(s): Ning Hao, University of Arizona

Chair(s): Yue S Niu, University of Arizona

10:35 a.m. The Screening and Ranking Algorithm for Change-Points Detection in Multiple Samples—✦Heping Zhang, Yale University School of Public Health

11:00 a.m. Penalized Versus Segmentation Methods in Changepoint Problems—✦Ryan Tibshirani, Carnegie Mellon University; Sangwon Hyun, Carnegie Mellon University; Kevin Lin, Carnegie Mellon University; Max G'Sell, Carnegie Mellon University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

11:25 a.m. Nonparametric Independence Testing via Mutual Information—Thomas B. Berrett, University of Cambridge; ✦Richard J Samworth, University of Cambridge

11:50 a.m. A New Class of Change Point Test Statistics of Renyi Type—✦Gregory Rice, University of Waterloo; Lajos Horvath, University of Utah

12:15 p.m. Floor Discussion

322 CC-West 109

■ ● Data-Driven Patient Management in the Era of Precision Medicine - from Discovery, Diagnostics, to Therapeutics—Invited

Council of Chapters, Biopharmaceutical Section, Section on Medical Devices and Diagnostics, SSC

Organizer(s): Ruixiao Lu, Genomic Health, Inc.

Chair(s): Li Zhang, UCSF School of Medicine, UCSF

10:35 a.m. Big Data Analysis Points Toward New Cancer Therapeutic Discovery Approach—✦Bin Chen, UCSF

11:00 a.m. Using Genomic Features to Make Smart Clinical Decisions: The Power of Machine Learning with RNA-Seq—✦Jing Huang, Veracyte Inc; Su yeon Kim , Veracyte Inc; Yangyang Hao, Veracyte Inc; Jing Lu, Veracyte Inc; Joshua Babiarz, Veracyte Inc; Sean Walsh, Veracyte Inc; Giulia Kennedy, Veracyte Inc

11:25 a.m. Developing Genomic Biomarker to Guide Personalized Patient Management in Oncology: Validity and Utility of Clinical Diagnostic Applications—✦Michael Crager, Genomic Health; Ruixiao Lu, Genomic Health, Inc.

11:50 a.m. Biomarker-Defined Subgroup Selection Adaptive Design for Phase III Confirmatory Trial—✦Rui Tang, Shire; Xiaoye Ma, University of Minnesota; Hui Yang, Amgen Inc.

12:15 p.m. Floor Discussion

323 CC-West 203

■ ● Graphics in Statistical Practice: Saying it with Pictures in the Classroom, Boardroom, or the Consulting Cube—Invited

Section on Statistical Graphics, Section on Statistical Consulting, Biopharmaceutical Section

Organizer(s): Suddhasatta Acharyya, Novartis pharmaceuticals corporation

Chair(s): Isabella R Ghement, Ghement Statistical Consulting Company Ltd.

10:35 a.m. Graphics in the Classroom: Making Statistics Picturesque—✦Kaushik Ghosh, University of Nevada Las Vegas

11:00 a.m. Graphics and Data Visualizations to Enhance Storytelling: Revealing Rather Than Obfuscating—✦Abhijit Dasgupta, ARAASTAT

11:25 a.m. Graphs for a Wider Audience: Distilling Complexity in Visuals to Inform Actions—✦Alicia Y. Toledano, Biostatistics Consulting, LLC

11:50 a.m. Statistical Graphics in Drug Development: Dose-Finding to Dossier Submission—✦Suddhasatta Acharyya, Novartis pharmaceuticals corporation

12:15 p.m. Floor Discussion

324 CC-East 17

■ ● Leading with Statistics: Process Monitoring and Improvement—Invited

Quality and Productivity Section, SSC

Organizer(s): Subhabrata Chakraborti, University of Alabama

Chair(s): Subhabrata Chakraborti, University of Alabama

10:35 a.m. Using Baseline Data in Process Improvement—✦Stefan Steiner, University of Waterloo; Jock MacKay, University of Waterloo

10:55 a.m. To Shrink or Not to Shrink: Hotelling's T2 Control Charts Based on Shrunken Covariance Estimates—✦Allison Jones-Farmer, Miami University; Steve Rigdon, St. Louis University; Debbie Shepherd, Louisiana State-Shreveport

11:15 a.m. Guaranteed In-Control Performance for Shewhart Control Charts—Rob Goedhart, University of Amsterdam; Marit Schoonhoven, University of Amsterdam; ✦Ronald J.M.M. Does, University of Amsterdam

11:35 a.m. Why Is Monitoring Time Between Events Better Than Monitoring Event Counts for Outbreak Detection?—✦Ross Stewart Sparks, Data61, CSIRO

11:55 a.m. Weighted EWMA Charts for Monitoring Type I Censored Weibull Lifetimes—✦Daniel R Jeske, University of California - Riverside; Shangjie Xu, University of California

12:15 p.m. Floor Discussion

325 CC-West 110

■ ● Bayesian Methods for Policy Research—Invited

Health Policy Statistics Section, Statistics and Public Policy, Section on Bayesian Statistical Science

Organizer(s): Jonathan Gellar, Mathematica Policy Research

Chair(s): Mariel Finucane, Mathematica Policy Research

10:35 a.m. A Retrospective Control Study of the Millennium Villages Project—✦Shira Mitchell, Mathematica Policy Research; Andrew Gelman, Columbia University; Jeffrey Sachs, Columbia University; Avi Feller, UC Berkeley; Elizabeth A Stuart, Johns Hopkins Bloomberg School of Public Health; Alan Zaslavsky, Harvard University Medical School

10:55 a.m. Uncertainty in the Design Stage of Observational Studies—✦Matthew Cefalu, RAND Corporation; Corwin Zigler, Harvard T.H. Chan School of Public Health

11:15 a.m. Evaluating Power Plant Regulations with Methods for Causal Inference on Bipartite Networks with Interference—✦Fabrizia Mealli, University of Florence; Corwin Zigler, Harvard T.H. Chan School of Public Health; Laura Forastiere, University of Florence

11:35 a.m. From Data to Decisions in Policy Analysis: The Role of Informative Priors—✦Andrew Gelman, Columbia University

11:55 a.m. Disc: Jennifer L Hill, New York University

12:15 p.m. Floor Discussion

Invited Panels 10:30 a.m.—12:20 p.m.

326 CC-West 210

■ ● **Will Administrative Data Save Government Surveys?—Invited**

Social Statistics Section, Government Statistics Section, Survey Research Methods Section

Organizer(s): Jonathan Auerbach, Columbia University

Chair(s): Joseph Salvo, New York City Department of City Planning

Panelists: ✦John Czajka, Mathematica Policy Research

✦George C Hough, WA State Office of Financial Management

✦Eddie Hunsinger, AK Department of Labor and Workforce Development

✦Quentin Brummet, NORC at the University of Chicago

12:10 p.m. Floor Discussion

327 CC-West 215/216

■ ● **Statistical Leadership: Insights from Experiences of Prominent Leaders—Invited**

Caucus for Women in Statistics, International Indian Statistical Association, Section on Statistical Consulting

Organizer(s): Vaneeta Kaur Grover, GlaxoSmithKline

Chair(s): Vaneeta Kaur Grover, GlaxoSmithKline

Panelists: ✦G. David Williamson, Centers for Disease Control and Prevention

✦Charmaine B Dean, University of Waterloo

✦Bonnie LaFleur, HTG Molecular Diagnostics, Inc.

✦William Brenneman, The Procter & Gamble Company

12:10 p.m. Floor Discussion

328 CC-East 10

■ **What Should Be the Role of Collaboration/Consulting for Applied Statistical Faculty Members in Academia: Rewards and Punishments—Invited**

Section on Statistical Consulting, ASA Caucus of Academic Representatives, Business Analytics/Statistics Education Interest Group, Section on Teaching of Statistics in the Health Sciences

Organizer(s): Martin S. Levy, University of Cincinnati

Chair(s): Peng Wang, University of Cincinnati

Panelists: ✦Virginia Lesser, Oregon State University

✦Shane Reese, Brigham Young University

✦George P. McCabe, Purdue University

✦Dipak Kumar Dey, University of Connecticut

✦James Cochran, University of Alabama

12:10 p.m. Floor Discussion

Topic Contributed Sessions 10:30 a.m.—12:20 p.m.

329 CC-West 121

■ ● **Novel Developments in Functional Data Analysis—Topic Contributed**

Section on Statistical Learning and Data Science, Biometrics Section, Section on Nonparametric Statistics

Organizer(s): Andrada E Ivanescu, Montclair State University

Chair(s): Ciprian Crainiceanu, Johns Hopkins University

10:35 a.m. A Functional Data Approach to Inverse Problems—✦John Aston, University of Cambridge; Eardi Lila, University of Cambridge; Simon Arridge, University College London

10:55 a.m. Registration for Exponential Functional Data—✦Julia Wrobel, ; Jeff Goldsmith, Columbia University

11:15 a.m. Outlier Detection in Dynamic Functional Models—✦Andrada E Ivanescu, Montclair State University; William Checkley, Johns Hopkins University; Ciprian Crainiceanu, Johns Hopkins University

11:35 a.m. Functional Graphical Models for Analyzing Interactions Between Animals—✦Jan Gertheiss, Clausthal University of Technology

11:55 a.m. Tidyfun: a New Framework for Representing and Working with Function-Valued Data—✦Fabian Scheipl, LMU Munich; Jeff Goldsmith, Columbia University

12:15 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

330 CC-East 19

■ ● Bayesian Analysis of Latent Variable Models in Economics—Topic Contributed

Business and Economic Statistics Section, Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): Angela Vossmeyer, Claremont McKenna College

Chair(s): Angela Vossmeyer, Claremont McKenna College

10:35 a.m. Integrated Analysis of the Life-Cycle Interactions Between Health and Socioeconomic Status—✦Ivan Jeliazkov, University of California - Irvine; Angela Vossmeyer, Claremont McKenna College

10:55 a.m. Testing Axioms of Stochastic Discrete Choice Using Population Choice Probabilities—✦William McCausland, Universite De Montreal; Anthony Marley, University of Victoria; Clintin Davis-Stober, University of Missouri

11:15 a.m. Learning-Based Inflation Expectations in an Unobserved Components Model—✦Srikanth Ramamurthy, Loyola University Maryland

11:35 a.m. A Bayesian Analysis of Compulsory School Ages and Later Life Outcomes—✦Alicia Lloro, None; Theodore Figinski, U.S. Department of the Treasury

11:55 a.m. Flexible Bayesian Quantile Regression in Ordinal Models—✦Mohammad Arshad Rahman, Indian Institute of Technology Kanpur; Shubham Karnawat, Credit Suisse

12:15 p.m. Floor Discussion

TUESDAY

331 CC-West 206/207

■ ● Statistical and Practical Issues for Reproducible Molecular Prediction in Biomedical Studies—Topic Contributed

ENAR

Organizer(s): Li-Xuan Qin, Memorial Sloan Kettering Cancer Center

Chair(s): Li-Xuan Qin, Memorial Sloan Kettering Cancer Center

10:35 a.m. Simple Bootstrap and Simulation Approaches to Quantifying Reliability of High-Dimensional Feature Selection—✦Frank Harrell, Vanderbilt University, Dept of Biostatistics

10:55 a.m. The Impact of Different Sources of Heterogeneity on Loss of Accuracy from Genomic Prediction Models—✦Levi Waldron, CUNY School of Public Health

11:15 a.m. Quantification of Reproducibility: Leave-Study-Out Estimation—✦Lo-Bin Chang,

11:35 a.m. DREAM Challenges: a Community Framework for Benchmarking Reproducible Biomedical Models—✦Justin Guinney, Sage Bionetworks

11:55 a.m. Estimating Directed Acyclic Graphs from High-Dimensional Data and Its Application in Biomarker Discoveries in Early Clinical Trials—✦Hua Zhong, New York University; Jaehong Yu, NYU School of Medicine

12:15 p.m. Floor Discussion

332 CC-West 114

■ Power of Adaptive Design in Controlling Survey Errors and Costs—Topic Contributed

Government Statistics Section, Survey Research Methods Section

Organizer(s): Asaph Young Chun, US Census Bureau

Chair(s): Asaph Young Chun, US Census Bureau

10:35 a.m. Fieldwork Monitoring for the European Social Survey: An Illustration with Belgium and the Czech Republic in Round 7—✦Caroline Vandenplas, KU Leuven; Geert Loosveldt, KU Leuven

10:55 a.m. Dynamic Question Ordering in Online Surveys—✦Kirstin Early, Oath; Jennifer Mankoff, University of Washington; Stephen E. Fienberg, Carnegie Mellon University

11:15 a.m. A Distance Method for Administrative Record Modeling in the 2020 Census—✦Vincent Mule, U.S. Census Bureau; Andrew Keller, U.S. Census Bureau; Scott Konicki, U.S. Census Bureau; Darcy Steeg Morris, U.S. Census Bureau

11:35 a.m. Inconsistent Regression and Nonresponse Bias—✦Peter Lundquist, Statistics Sweden; Carl-Erik S%orndal, Statistics Sweden

11:55 a.m. Floor Discussion

333 CC-West 116

Section on Nonparametric Statistics - Student Paper Awards—Topic Contributed

Section on Nonparametric Statistics

Organizer(s): Howard D Bondell, University of Melbourne

Chair(s): Howard D Bondell, University of Melbourne

10:35 a.m. Inference on Average Treatment Effect with Repeated Data Splitting in High Dimensions—✦Jingshen Wang, University of Michigan; Xuming He, University of Michigan; Gongjun Xu, University of Michigan

10:55 a.m. Bayesian Spline Smoothing with Ambiguous Penalties—✦Xinlian Zhang, University of Georgia; Gauri Sankar Datta, University of Gerogia; Ping Ma, University of Georgia; Wenxuan Zhong, University of Georgia

11:15 a.m. Supervised Principal Component Regression for Functional Data with High-Dimensional Predictors—✦Xinyi Zhang, University of California, Berkeley; Dehan Kong, University of Toronto; Qiang Sun, University of Toronto

11:35 a.m. Optimal Estimation in Functional ANOVA Models with Derivatives—✦Xiaowu Dai, University of Wisconsin Madison; Peter Chien, University of Wisconsin-Madison

11:55 a.m. Frechet Analysis of Variance for Random Objects—✦Paromita Dubey, University of California, Davis; Hans Mueller, UC Davis

12:15 p.m. Floor Discussion

334 CC-East 9

■ ● Statistical Methods in Astronomy, Astrophysics and Cosmology—Topic Contributed

Astrostatistics Special Interest Group

Organizer(s): Thomas C. M. Lee, UC Davis

Chair(s): David Stenning, Imperial College London

10:35 a.m. Constructing Cosmological Emulators from a Mixture of Complete and Partial Simulation Results—✦Earl Christopher Lawrence, Los Alamos National Laboratory

10:55 a.m. Analyzing Cosmic Webs Using Geometric Approaches—✦Yen-Chi Chen, University of Washington

11:15 a.m. Defining Regions That Contain Complex Astronomical Structures—✦Kathryn McKeough, Harvard University

11:35 a.m. The Large-Scale Universe: a 3D Map via the Lya Forest of BOSS DR12 Quasars—✦Collin Eubanks,

11:55 a.m. Automatic Detection of Abrupt Changes in the Spectra of High-Energy Astrophysical Sources—✦Tongyi Tang,

12:15 p.m. Floor Discussion

335 CC-West 221

ASA Biometrics Section JSM Travel Awards (II)—Topic Contributed

Biometrics Section

Organizer(s): Youyi Fong, Fred Hutchinson Cancer Research Center

Chair(s): Yi Zhao, Johns Hopkins Bloomberg School of Public Health

10:35 a.m. Semiparametric Single-Index Models for Optimal Treatment Regimes with Censored Outcomes—✦Jin Wang, University of North Carolina at Chapel Hill; Danyu Lin, University of North Carolina; Donglin Zeng, UNC Chapel Hill

10:55 a.m. Structural Learning and Integrative Decomposition of Multi-View Data—✦Irina Gaynanova, Texas A&M University; Gen Li, Columbia University

11:15 a.m. Estimation and Optimization of Composite Outcomes—✦Daniel J Luckett, University of North Carolina at Chapel Hill; Eric Laber, North Carlina State University; Michael Kosorok, University of North Carolina at Chapel Hill

11:35 a.m. Individualized Treatment Effects with Censored Data via Fully Nonparametric Bayesian Accelerated Failure Time Models—✦Nicholas Henderson, Johns Hopkins University

11:55 a.m. Floor Discussion

336 CC-West 224

■ ● Surrogate Endpoints: Bridging the Roles of Biology and Statistics for Clinical Outcome Prediction—Topic Contributed

Biopharmaceutical Section

Organizer(s): Hong Tian, Janssen Pharmaceutical

Chair(s): Sue-Jane Wang, Center for Drug Evaluation and Research U.S. Food and Drug Administration

10:35 a.m. On the Relationship Between the Causal-Inference and Meta-Analytic Paradigms for the Evaluation of Surrogate Endpoints—✦Geert Molenberghs, Universiteit Hasselt & Katholieke Universiteit Leuven

10:55 a.m. Assessment of Biomarkers and Surrogate Endpoints in Drug Development—✦Ivan Chan, AbbVie Inc; Shu-Chih Su, Merck Research Labs

11:15 a.m. Limitations of Progression Free Survival as a Surrogate Marker for Overall Survival in Oncology Trials—Robin Mogg, Merck Research Laboratories; ✦Yiwei Zhang, Merck Research Laboratories

11:35 a.m. Identifying and Validating Surrogate Endpoints for Overall Survial (OS) in Metastatic Castration-Resistant Prostate Cancer—✦Xiaowei Guan, Pfizer, Inc.; Michelle Casey, Pfizer, Inc.; De Phung, Astellas Pharma, Inc. ; Suha Sari, Pfizer, Inc.; Eren Demirhan, Pfizer, Inc.

11:55 a.m. Disc: Vladimir Dragalin, Janssen R&D

12:15 p.m. Floor Discussion

337 CC-West 222

Causal Inference for Complex Data Challenges—Topic Contributed

Biometrics Section

Organizer(s): Justin R Williams, UCLA

Chair(s): Thomas Belin, UCLA

10:35 a.m. Estimating Causal Effects of Organ Transplantation Treatment Regimes—✦David Michael Vock, University of Minnesota; Jeffrey Boatman, Gustavus Adolphus College

10:55 a.m. Propensity Score Methods for Studies with Hierarchical Data Structure and Continuous Treatments: Application to Childhood Obesity Interventions in Los Angeles County—

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

✦Justin R Williams, UCLA; Catherine Crespi, University of California, Los Angeles; May Wang, University of California, Los Angeles

11:15 a.m. Robust Estimation of Propensity Score Weights via Subclassification—✦Linbo Wang, ; Xiao-Hua Zhou, Peking University; Thomas Richardson, University of Washington

11:35 a.m. Time-Varying Survivor Average Causal Effects with Semicompeting Risks—✦Leah Comment, Harvard T.H. Chan School of Public Health; Fabrizia Mealli, University of Florence; Corwin Zigler, Harvard T.H. Chan School of Public Health

11:55 a.m. Integrating Data from Clinical Trials for More Powerful Mediation and Interaction Analyzes—✦Linda Valeri, McLean Hospital, Harvard Medical School; Yiwen Zhu, Massachussetts General Hospital; Franca Centorrino, McLean Hospital; Garrett Fitzmaurice, McLean Hospital

12:15 p.m. Floor Discussion

338 CC-West 214

BIOP Student Paper Awards—Topic Contributed

Biopharmaceutical Section

Organizer(s): Qi Jiang, Amgen

Chair(s): Haoda Fu, Eli Lilly and Company

10:35 a.m. The Reduced PC-Algorithm: Improved Causal Structure Learning in Large Random Networks—✦Arjun Sondhi, University of Washington; Ali Shojaie, University of Washington

10:55 a.m. A Robust Approach to Sample Size Calculation in Cancer Immunotherapy Trials with Delayed Treatment Effect—✦Ting Ye, University of Wisconsin-Madison; Menggang Yu, University of Wisconsin-Madison

11:15 a.m. Bayesian Personalized Multi-Criteria Benefit-Risk Assessment of Medical Products—✦Kan Li, University of Texas Health Science Center; Sammy Yuan, Merck; Sheng Luo, Duke University Medical Center

11:35 a.m. The Statistical Performance of Matching-Adjusted Indirect Comparisons—✦David Cheng, Harvard University; Rajeev Ayyagari, Analysis Group; Timothy Juday, Allergan; Angelina Villasis Keever, Janssen Research and Development; James Signorovitch, Analysis Group

11:55 a.m. AAA: Triple-Adaptive Bayesian Designs for the Identification of Optimal Dose Combinations in Dual-Agent Dose-Finding Trials—✦Jiaying Lyu, University of Chicago; Fudan University; Yuan Ji, NorthShore Univ. HealthSystem / The University of Chicago

12:15 p.m. Floor Discussion

339 CC-West 205

■ Official Statistics and Small Area Estimation—Topic Contributed

Survey Research Methods Section

Organizer(s): Andreea Erciulescu, National Institute of Statistical Sciences

Chair(s): Nathan Cruze, USDA National Agricultural Statistics Service

10:35 a.m. Bayesian Monte Carlo Method for Estimating Small Area Complex Parameters Under Unit-Level Models with Skew-Normal Errors—✦Mamadou Diallo, ; Balgobin Nandram, Worcester Polytechnic Institute; J. N. K. Rao, Carleton University

10:55 a.m. Empirical Bayes Estimation of Small Area Means Under Unmatched Two-Fold Subarea Models—✦Song Cai, Carleton University; Golshid Chatrchi, Carlelton University; Shonosuke Sugasawa, The University of Tokyo; J.N.K. Rao, Carleton University

11:15 a.m. Approximating Zero Standard Errors of County-Level Survey Estimates—✦Valbona Bejleri, USDA National Agricultural Statistics Service; Habtamu Benecha, USDA National Agricultural Statistics Service; Andreea Erciulescu, National Institute of Statistical Sciences; Nathan Cruze, USDA National Agricultural Statistics Service; Balgobin Nandram, Worcester Polytechnic Institute

11:35 a.m. Bayesian Analysis of Multinomial Counts from Small Areas and Sub-Areas—✦Balgobin Nandram, Worcester Polytechnic Institute

11:55 a.m. Bayesian Inference for the Relationship Between Two Categorical Variables with Covariates for Clustered Data—✦Dilli Bhatta, University of South Carolina Upstate

12:15 p.m. Floor Discussion

Contributed Sessions 10:30 a.m.—12:20 p.m.

340 CC-West 208

SPEED: Applications of Advanced Statistical Techniques in Complex Survey Data Analysis: Small Area Estimation, Propensity Scores, Multilevel Models, and More—Contributed

Survey Research Methods Section

Chair(s): Karol Krotki, RTI International

10:35 a.m. Prisoners Are People Too: Statistical Disclosure Control in the 2016 Survey of Prison Inmates—✦Nicole Mack, RTI International; Marcus Berzofsky, RTI International; Stephanie Zimmer, RTI International

10:40 a.m. Estimation and Inference of Domain Means Subject to Shape Constraints—✦Cristian Oliva, Colorado State University; Mary C. Meyer, Colorado State University; Jean D. Opsomer, Colorado State University

10:45 a.m. Producing Subnational Estimates from the National Crime Victimization Survey—✦Andrew Moore, RTI International; Marcus Berzofsky, RTI International; George Couzens, RTI International; Stephanie Zimmer, RTI International; Caroline Scruggs, RTI International

10:50 a.m. On Mediation Analysis in Public Health Using the Complex Survey Data—Thanh Pham, University of Central Florida; ✦Julia Soulakova, University of Central Florida; Monsur Chowdhury, University of Central Florida

10:55 a.m. Generalized Estimating Equations for Social Network Data—✦Miles Ott, Smith College; Bjorn Westgard, HealthPartners; Brian Martinson, HealthPartners; Michael Maciosek, HealthPartners

11:00 a.m. Numerical Comparison of Various Bootstrap Methods in Survey Sampling—✦Christian Léger, Université de Montréal; Oussama Dabdoubi, Université de Montréal

11:05 a.m. Meta-Analysis of Survey-Based, Non-Experimental Individual Person Data with Heterogeneous Weighting Schemes—✦Anna-Carolina Haensch, GESIS Institute ; Bernd Weiss, GESIS - Leibniz-Institute for the Social Sciences

11:10 a.m. Joint Modeling of Point Estimates and Variances for Survey Estimation—✦Julie Gershunskaya, U.S. Bureau of Labor Statistics; Terrance Savitsky, Bureau of Labor Statistics

11:15 a.m. Bayesian Inference for Sample Surveys in the Presence of High-Dimensional Auxiliary Information—✦Yutao Liu, Columbia University; Andrew Gelman, Columbia University; Qixuan Chen, Columbia University

11:20 a.m. Calibrated Bayesian Approach for Small Area Prevalence Estimation Using Survey Data with Replicate Weights—✦Trung Ha, University of Central Florida; Julia Soulakova, University of Central Florida

11:30 a.m. Quantile Regression Analysis of Survey Data Under Informative Sampling—✦Daniel Zhao, OU Health Sciences Center; Sixia Chen, University of Oklahoma

11:35 a.m. Estimating Causal Effects with Propensity Score in Cluster Sample Surveys—✦Giovanni Nattino, Ohio State University; Bo Lu, The Ohio State University

11:40 a.m. The Problem of Analytic Error in Secondary Analysis of Survey Data: What We Know, and What We Need to Do About It—✦Brady T. West, University of Michigan; Joe Sakshaug, University of Manchester

11:45 a.m. Parameter Estimate Bias Resulting from Level 3 Sample Size Decisions—✦Tingqiao Chen, ; Frank Lawrence, Michigan State University; Wenjuan Ma, Michigan State University

11:50 a.m. Comparing Direct Survey and Small Area Estimates of Health Care Coverage in New York—✦Jeniffer Iriondo Perez, RTI International; Rachel Harter, RTI International; Amang Sukasih, RTI International

11:55 a.m. Causal Inference with Complex Surveys: a Comparison of Propensity Score Based Methods—✦Daniele Bottigliengo, Universit‡ degli Studi di Padova; Ileana Baldi, Universit‡ degli Studi di Padova; Corrado Lanera, Universit‡ degli Studi di Padova; Dario Gregori, Universit‡ degli Studi di Padova; Paola Berchialla, Universit‡ degli Studi di Torino

12:00 p.m. Empirical Bayes Small Area Prediction of Sheet and Rill Erosion Using a Zero-Inflated Lognormal Model—✦Xiaodan Lyu, Iowa State Univ; Emily Berg, Iowa State University; Heike Hofmann, Iowa State University

12:05 p.m. Small Area Estimation of HIV Measures in Sub-Saharan Africa—✦Sahar Zangeneh, Fred Hutchinson Cancer Research Center; Jon Wakefield, Univ of Washington; Ann Duerr, Fred Hutch; Deborah Donnell, Fred Hutch

12:10 p.m. Machine Learning to Evaluate the Quality of Patient Reported Epidemiological Data—✦Robert L. Wood, Resonate & Wichita State University; Futoshi Yumoto, Resonate; Rochelle Tractenberg, Georgetown University

341 CC-West 212

SPEED: Classification and Data Science—Contributed

Section on Statistical Learning and Data Science, SSC

Chair(s): Jesse Cambon, Booz Allen Hamilton

10:35 a.m. Targeted Maximum Likelihood Estimation of Causal Effects Based on Observing a Single Time Series—✦Ivana Malenica, ; Mark van der Laan, UC Berkeley

10:40 a.m. Accessible Statistical Reports in R: Using R, Markdown, and Word to Create Accessible Reproducible Documents—✦Robert Montgomery, NORC; Peter Herman, NORC at the University of Chicago; Qiao Ma, NORC at the University of Chicago; Stephen Schacht, NORC at the University of Chicago

10:45 a.m. Differentiable Approximations of Hidden Markov Models for Variational Bayesian Inference—✦Lun Yin, Duke Institute for Brain Sciences; John Pearson, Duke University

10:50 a.m. How to Effectively Communicate Misunderstood Statistical Terms—✦Hoiyi Ng, Amazon; Paavni Rattan, Amazon

10:55 a.m. Aggregated Pairwise Classification of Statistical Shapes with Optimal Points of Projection—✦Min Ho Cho, The Ohio State University; Sebastian Kurtek, The Ohio State University; Steve MacEachern, The Ohio State University

11:00 a.m. Supervised Dimension Reduction for Large-Scale Genomic Data with Censored Survival Outcomes Under Possible Non-Proportional Hazards—✦Lauren Spirko, Temple University; Karthik Devarajan, Fox Chase Cancer Center

11:05 a.m. Improving a Predictive Model of Student Progress in an Online Course by Adding Learned Features from Unstructured Text Data—✦Huafeng Zhang, The Refugee Center Online

11:10 a.m. Classification via Product Conditional Density Estimates: Blending LDA and QDA—✦Jiae Kim, ; Steve MacEachern, The Ohio State University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

11:15 a.m. Comparison of Missing Data Methods in the Use of LASSO Regression for Model Selection with Applications to the National Trauma Data Bank—Sarah B Peskoe, Duke University; ✦Tracy Truong, Duke University; Lily R Mundy, Duke University School of Medicine; Ronnie L Shammas, Duke University School of Medicine; Scott T Hollenbeck, Duke University School of Medicine

11:20 a.m. An Alternative to the Carnegie Classifications: Using Structural Equation Models to Identify Similar Doctoral Institutions—✦Paul Harmon, Montana State University; Sarah McKnight, Montana State University; Laura Hildreth, Montana State University; Ian C. Godwin, Montana State University Office of Planning and Analysis; Mark Greenwood, Montana State University

11:30 a.m. Efficient Semiparametric Generalized Linear Models Based on Exponentially Tilted Splines—✦William H Aeberhard, Dalhousie University; Mark Hannay, Intrum Justitia CH

11:35 a.m. A Machine Learning (ML) Approach to Prognostic and Predictive Covariate Identification for Subgroup Analysis and Hypotheses Generation—✦David A James, Novartis

11:40 a.m. A Direct Approach to High-Dimensional Error-In-Variables Regression—✦Yunan Wu, University of Minnesota; Lan Wang, University of Minnesota

11:45 a.m. A Modified Approach to Component-Wise Gradient Boosting for High-Dimensional Regression Models—✦Brandon Butcher, University of Iowa; Brian J. Smith, University of Iowa

11:50 a.m. Efficient Big Data Model Selection with Applications to Fraud Detection—✦Gregory Vaughan, Bentley University

11:55 a.m. Predicting Overflow: a Novel Application of Latrine Sensors and Machine Learning for Optimizing Sanitation Services in Informal Settlements—✦Phillip Turman-Bryant, Portland State University; Evan Thomas, Portland State University

12:00 p.m. Undergraduate Data Science Statistics Pathways: What Is Needed for Entry into the Major?—✦Rebecca Hartzler, Charles A. Dana Center, University of Texas at Austin; Nicholas J. Horton, Amherst College

12:05 p.m. Assessing Divide-And-Conquer Latent Class Analysis—✦Qiao Ma, NORC at the University of Chicago; Meimeizi Zhu, NORC at the University of Chicago; Edward Mulrow, NORC at the University of Chicago

12:10 p.m. Lookalike Audience Modeling—✦Sam Hawala, Resonate-Networks

342 CC-West 209

SPEED: Sports to Fire: Fascinating Applications of Statistics—Contributed

Section on Statistics in Sports, SSC, Section on Statistics in Imaging, Section on Statistical Computing, Section on Statistical Consulting, Section on Statistical Learning and Data Science, Section on Statistics in Epidemiology, Statistical Auditing Interest Group, Transportation Statistics Interest Group, Section on Teaching of Statistics in the Health Sciences, Section for Statistical Programmers and Analysts

Chair(s): Bo Chen, University of Toronto

10:35 a.m. Claim-Level Models Using Statistical Learning Techniques and Risk Analysis—✦Mathieu Pigeon, UniversitÉ du Québec ‡ Montréal; Francis Duval, Universite´ du Québec ‡ Montréal

10:40 a.m. Beach Volleyball Team Optimization—✦Matthew Oehler, BYU

10:45 a.m. Distributions of Time to First Spot Fire—✦Trevor Thomson, Simon Fraser University

10:50 a.m. Rao-Blackwellizing Field Goal Percentage in the NBA—✦Daniel Daly-Grafstein, Simon Fraser University; Luke Bornn, Sacramento Kings and Simon Fraser University

10:55 a.m. Estimating Attendance at Non-Ticketed Non-Gated Events—✦Carl Schwarz, Simon Fraser University

11:00 a.m. Study Baseball Pitching and Swing Quality Factors—✦Mason Chen, Stanford OHS; Andrew Chen, University of San Francisco

11:05 a.m. Tax Auditing Use of Cumulative Square Root of the Frequency Method—✦Zachary Rhyne, Ryan, LLC.; Roger C. Pfaffenberger, Ryan, LLC

11:10 a.m. Teaching Statistics Graduate Students the Importance of Reproducible Research—✦Kristen McQuerry, University of Kentucky

11:15 a.m. Statistical Ethics and Challenging Substantial Errors in Statistical Methods and Results in a Prominent Peer Reviewed Economics Journal—✦Chris Barker, Statistical Planning and Analysis Services, Inc.

11:20 a.m. To Bet or Not to Bet - the Modified Kelly Criteria—✦Dani Chu, SFU Sports Analytics Club; Yifan Wu, Simon Fraser University; Tim Swartz, Simon Fraser University

11:30 a.m. The Home Run Spike of MLB 2017: Drop in Quality of Pitch (QOP) Is a Missing Factor—✦Jason Wilson, Biola University

11:35 a.m. An Application of Machine Learning for 3D IC Defect Detection—✦Meihui Guo, National Sun Yat-Sen University; Yu-Jung Huang, I-Shou University

11:40 a.m. Quantifying the Causal Effects of Peak Load Pricing on Mass Transit Ridership via a Temporal Regression Discontinuity Analysis of Large Scale Smart-Card Data—✦Daniel Graham, Imperial College London; Haojie Li, Southeast University

11:45 a.m. The Simple Story of Advanced NBA Metrics—✦Zach Fulker, University of Pittsburgh; Tyler Folta, University of Pittsburgh; Lucas Mentch, University of Pittsburgh

11:50 a.m. Application of Email Spam Filtering Algorithms to SMS Data—✦Yishu Xue, University Of Connecticut

11:55 a.m. MLB Rule IV Draft: Valuing Draft Pick Slots—✦Anthony Cacchione, City College of New York

12:00 p.m. Assessing the Impact of Practice Restriction Rules on Injury Rates in the National Football League (NFL)—✦Zachary Binney, Rollins School of Public Health, Emory University; Cecile Janssens, Rollins School of Public Health, Emory University; Kyle E Hammond, Emory University School of Medicine; Mitchel Klein, Rollins School of Public Health, Emory University; Michael Goodman, Emory University

343 CC-West 213

SPEED: Tests, Trials, Biomarkers and Other Topics in Biometrics—Contributed

Biometrics Section, Biopharmaceutical Section, ENAR

Chair(s): Sayan Dasgupta, Fred Hutchinson Cancer Research Center

10:35 a.m. Some T-Tests for N-Of-1 Trials with Serial Correlation—✦Ji-Ling Tang, University of Arkansas for Medical Sciences; Reid D. Landes, University of Arkansas for Medical Sciences; Anne Holbrook, McMaster University; Mark S Mennemeier, University of Arkansas for Medical Sciences; J. Tyler Floyd, University of Central Arkansas

10:40 a.m. Some T-Tests for N-Of-1 Trials with Serial Correlation: Correction Factors for Trials with Few Observations—✦Reid D. Landes, University of Arkansas for Medical Sciences; Ji-Ling Tang, University of Arkansas for Medical Sciences; Mark S Mennemeier, University of Arkansas for Medical Sciences; J. Tyler Floyd, University of Central Arkansas; Anne Holbrook, McMaster University

10:45 a.m. Hybrid Cluster-Individual Randomization Allocation—✦Yi-Fan Chen, University of Illinois at Chicago; Jonathan Yabes, University of Pittsburgh

10:50 a.m. Adjusting a Finite Population Block Kriging Estimator for Imperfect Detection—✦Matthew Higham,

10:55 a.m. Using Logistical Regression to Build a Better Diathesis Model of Dupuytren's Contracture Recurrence—✦Brian Cohen, ACI Clinical

11:00 a.m. A Multivariate Zero-Inflated Logistic Model for Human Microbiome Data—✦Zhigang Li, ; James O'Malley, Dartmouth; Hongzhe Li, University of Pennsylvania

11:05 a.m. Interactive Applications Using R and the Shiny Package for Clinical Trial Design and Simulations—✦Jing Wang, Pfizer, Inc; Yuanbo Song, Novartis

11:10 a.m. A Two-Stage Method to Analyze Multivariate Cluster Biomarkers in Prediction on a Single Binary Outcome—✦Xiaoying Yu, University of Texas Medical Branch at Galveston; Wenyaw Chan, University of Texas Health Science Center at Houston; Gracie Vargas, University of Texas Medical Branch at Galveston; Rahul Pal, University of Texas Medical Branch at Galveston

11:15 a.m. An Estimation Method for Enzyme Kinetic Model Parameters Based on Bayesian Approach—✦Boseung Choi, Korea University; Jae Kyoung Kim, Korea Advanced Institute of Science and Technology; Grzegorz A Rempala, The Ohio State University

11:20 a.m. Statistical Precision of Time-to-Event Endpoint in Single Arm Observational Study Using Monte Carlo Simulation—✦Meijing Wu, AbbVie; Hongwei Wang, AbbVie Inc; Yabing Mai, AbbVie, Inc; Dajun Tian, Chiltern

11:30 a.m. Multiple Testing Procedure Consideration in Clinical Trials—✦Rachael Wen, Sanofi

11:35 a.m. Practical Determining the Late Effect Parameter in Fleming-Harrington Test When a Delayed Treatment Effect Is Predicted—✦Yuichiro Kaneko, Astellas Pharma; Satoshi Morita, Kyoto University

11:40 a.m. Inferring Networks from Personal, Dense, Dynamic Data Clouds of Biological and Quantified-Self Data—✦Elisa Sheng, Arivale

11:45 a.m. Optimal Testing Configurations for Group Testing—✦Brianna D. Hitt, University of Nebraska-Lincoln; Christopher R. Bilder, University of Nebraska-Lincoln; Joshua M. Tebbs, University of South Carolina; Christopher S. McMahan, Clemson University

11:50 a.m. Common Risk Difference Test and Interval Estimation of Risk Difference for Stratified Bilateral Correlated Data—✦Xi Shen, State University of New York At Buffalo; Changxing Ma, State University of New York At Buffalo; Guoliang Tian, Southern University of Science and Technology; Kam Chuen Yuen, The University of Hong Kong

11:55 a.m. Functional Data Analysis in Dose-Adjusted Tacrolimus Trough Concentration Modeling: a New Method to Compare Intrapatient Variance Between Patient Cohorts—✦Janet Kim, Astellas Pharma Global Development, Inc.; Sam Wilson, Astellas Pharma Global Development, Inc.; Jason J Schwartz, Astellas Pharma Global Development, Inc.

12:00 p.m. Probability of Success Computation for Survival Models—✦Shanhong Guan, Pharmacyclics

12:05 p.m. Design Considerations When Comparing Control, Treatment, and Treatment Plus in Randomized Trials—✦Abigail Shoben, Ohio State University

TUESDAY

Contributed Sessions 10:30 a.m.—12:20 p.m.

344 CC-West 223

■ Semiparametric Modeling—Contributed

Biometrics Section

Chair(s): Jing Wang, The University of Texas at Arlington

10:35 a.m. Semiparametric Trend Analysis for Recurrent Event Data Under Weak Comparability—✦Peng Liu, University of Alberta; Yijian Huang, Emory University; Kwun Chuen Gary Chan, University of Washington; Ying Qing CHEN, Fred Hutchinson Cancer Research Center

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

10:50 a.m. Semiparametric Estimation of the Mean and Coefficient of Variation of the Interevent Distribution of a Renewal Process from Cross-Sectional Count Data—✦John D. Rice, University of Colorado, Denver; Robert L. Strawderman, University of Rochester; Brent A. Johnson, University of Rochester

11:05 a.m. An Application of Covariate-Adjusted Partial Spearman's Rank Correlations with Probability-Scale Residuals—✦Cathy A Jenkins, Vanderbilt University Medical Center; John R Koethe, Vanderbilt University School of Medicine; Timothy R Sterling, Vanderbilt University School of Medicine; Spyros A Kalams, Vanderbilt University School of Medicine; Bryan E Shepherd, Vanderbilt University School of Medicine

11:20 a.m. The Welch's T-Test with Covariates—✦Cong Cao, The University of Texas at Dallas; Markus Pauly, Ulm University; Frank Konietschke, The University of Texas at Dallas

11:35 a.m. Conditional Quantile Inference with Zero-Inflated Outcomes—✦Wodan Ling, Columbia University; Ying Wei, Columbia University; Bin Cheng, Columbia University; Ken Cheung, Columbia University

11:50 p.m. Sample-Weighted Semiparametric Estimates of Cause-Specific Cumulative Incidence Using Left-/Interval Censored Data from Electronic Health Records—✦Noorie Hyun, Medical College of Wisconsin; Hormuzd A. Katki, Biostatistics Branch, Division of Cancer Epidemiology & Genetics, National Cancer Institute; Barry Ira Graubard, National Cancer Institute

12:05p.m. Floor Discussion

TUESDAY

345 CC-West 117

Theory and Methods for Multivariate Analysis—Contributed

IMS

Chair(s): Hao Helen Zhang, University of Arizona

10:35 a.m. Distribution of Interpoint Distances for Discrete Multivariate Distributions—✦Yu Song, ; Reza Modarres, The George Washington University

10:50 a.m. A Unified Approach to Define Some Multivariate Distributions—✦Khalil Shafie, University of Northern Colorado

11:05 a.m. How to Select the Number of Components in PCA and Factor Analysis? Understanding and Improving Permutation Methods—✦Edgar Dobriban, ; Art Owen, Stanford University

11:20 a.m. Empirical Likelihood Based Covariance Matrix Estimation—✦Sanjay Chaudhuri, National University of Singapore

11:35 a.m. A Flexible Construction for Bivariate Copulas Emphasizing Local Dependence—✦Xiaonan Zhu, New Mexico State University; Suttisak Wisadwongsa, Chiang Mai University; Tonghui Wang, New Mexico State University

11:50 a.m. A Semiparametric Approach for Modeling Multivariate Nonlinear Time Series—✦Seyed Yaser Samadi, Southern Illinois University, Carbondale

12:05 p.m. A Conditional Test for Homogeneity of Several Order-Restricted Normal Mean Vectors—✦Madhurima Majumder, Bayer Pharmaceuticals; Michael McDermott, University of Rochester Medical Center

346 CC-West 115

● Recent Advances in Nonparametric Statistical Methods—Contributed

Section on Nonparametric Statistics

Chair(s): Xiao Wu, Harvard University

10:35 a.m. Nonparametric Change Point Detection of Periodic Data—✦Lingzhe Guo, The George Washington University; Reza Modarres, The George Washington University

10:50 a.m. Adjusted Empirical Likelihood Based Inference for ROC Curves—✦Haiyan Su, Montclair State University

11:05 a.m. Bounds on the Efficiency of Unbalanced Ranked-Set Sampling—✦Jesse Frey, Villanova University

11:20 a.m. Nonparametric Operator-Regularized Covariance Function Estimation for Functional Data—✦Xiaoke Zhang, George Washington University; Raymond Wong, Texas A&M University

11:35 a.m. Equivalent Kernels of Local Polynomial Fitting in Varying Coefficient Models—✦Chunyen Wu, Institute of Statistics, National Tsing Hua University, TAIWAN; Li-Shan Huang, Institute of Statistics, National Tsing Hua University, TAIWAN

11:50 a.m. Nonparametric Estimation of Risk Tracking Indices for Longitudinal Studies—✦Xin Tian, National Heart, Lung and Blood Institute; Colin O. Wu, National Heart, Lung and Blood Institute, NIH

12:05 p.m. Nonparametric Inference on L'Evy Measures of L'Evy-Driven Ornstein-Uhlenbeck Processes—✦Daisuke Kurisu,

347 CC-East 16

Machine Learning and Applications in Complex Engineering Systems—Contributed

Section on Physical and Engineering Sciences, SSC

Chair(s): Blanton Godfrey, North Carolina State University

10:35 a.m. Data-Driven Modeling and Forecast of Noisy Nonlinear Dynamics—✦Kyongmin Yeo, IBM T.J. Watson Research

Center; Youngdeok Hwang, Sungkyunkwan University; Eun Kyung Lee, IBM T.J. Watson Research Center

10:50 a.m. The Identification and Quantification of Pits, Cracks, and Corrosion from Container Material Image Surface Depth Measurements with Subsequent Container Classification—✦James Wendelberger, Los Alamos National Laboratory

11:05 a.m. Prediction for Distributional Outcomes in the Management of High-Performance Computing Input/Output (I/O) Variability—✦Li Xu, Virginia Tech; Thomas Lux, Virginia Tech; Tyler Chang, Virginia Tech; Bo Li, Virginia Tech; Yili Hong, Virginia Tech; Layne Watson, Virginia Tech; Kirk Cameron, Virginia Tech; Jon Bernard, Virginia Tech

11:20 a.m. Spectral Methods for Kernel Learning—✦Charlotte Haley, Argonne National Lab; Christopher J Geoga, Argonne National Laboratory; Mihai Anitescu, Argonne National Laboratory

11:35 a.m. Covering Arrays: An Efficient Tool for Validating Complex Engineered Systems—✦Ryan Lekivetz, SAS Institute, Inc.; Joseph Morgan, SAS Institute, Inc.

11:50 a.m. Hidden in the Signal—✦Eunice Kim, iCIMS; Ildoo Kim, Brown University

12:05 p.m. Floor Discussion

348 CC-West 112

Investigations into the Teaching and Learning of Statistics—Contributed

Section on Statistical Education

Chair(s): Joy Yang, MIT

10:35 a.m. Student Survey of Motivational Attitudes Toward Statistics—✦Alana Unfried, California State University, Monterey Bay; Sarah Coffin, California State University, Monterey Bay; April Kerby, Winona State University

10:50 a.m. The Impact of a Growth Mindset Lecture on Traditional and Non-Traditional Statistics Students' Attitudes, Perceptions, Performance, and Retention—✦Dr Nandini Bhowmick, Indiana State University; Dr Wendi Benson, Nevada State College

11:05 a.m. Dynamic Patterns in Student Evaluations of Teaching After Switching from a Traditional to Blended Format—✦James Schmidt, University of Nebraska - Lincoln

11:20 a.m. Ensemble Learning for Estimating Individualized Treatment Effects in Student Success Studies—✦Richard Levine, San Diego State University; Joshua Beemer, San Diego State University; Juanjuan Fan, San Diego State University

11:35 a.m. Implementing the HyFlex (Hybrid-Flexible) Model of Course Delivery in a Probability and Statistics Course for Engineers and Scientists—✦Jackie Miller, University of Michigan; Melinda E Baham, Baham Consulting

11:50 a.m. Concept Maps, Feedback, and Statistics Learning: Exploring the Effects of Expert Map Feedback and Peer Feedback on Concept Map Structure—✦Terry Hickey, St. Martin's University

12:05 p.m. Statistics Education Across the University: a Systematic Review—✦Aimee Schwab-McCoy, Creighton University

349 CC-West 202

Longitudinal, Spatial, and Bayesian Methods—Contributed

Section on Statistics in Epidemiology

Chair(s): Veronica J. Berrocal, University of Michigan

10:35 a.m. The Relationship Between Moderate to Vigorous Physical Activity and Metabolic Syndrome: a Bayesian Measurement Error Approach—✦Daniel Ries, Sandia National Laboratories; Alicia Carriquiry, Iowa State University

10:50 a.m. Relationship Between Caffeine Intake and Autosomal Dominant Polycystic Kidney Disease Progression—✦Katelyn McKenzie, University of Kansas Medical Center; Jonathan D Mahnken, University of Kansas Medical Center; Mirelle El Ters, Division of Nephrology and Hypertension, Mayo Clinic; Vicente E Torres, Division of Nephrology and Hypertension, Mayo Clinic; Peter C Harris, Division of Nephrology and Hypertension, Mayo Clinic; Arlene B Chapman, Section of Nephrology, University of Chicago School of Medicine; Michal Mrug, Division of Nephrology, University of Alabama; Frederic F. Rahbari-Oskoui, Emory University School of Medicine; Kyongtae Ty Bae, University of Pittsburgh School of Medicine; Douglas P Landsittel, University of Pittsburgh School of Medicine; William M Bennett, Legacy Good Samaritan Hospital; Alan S. L. Yu, Division of Nephrology and Hypertension, and the Jared Grantham Kidney Institute, KUMC

11:05 a.m. Estimating Small Area Life Expectancy Using Hellinger Distance Spatial Correlation—✦Robert E. Johnson, Vanderbilt University; Sarah Lotspeich, Vanderbilt University

11:20 a.m. Spatial Statistics Vs Machine Learning: Evaluating Air Pollution Exposure Prediction Models—✦Gregory Watson, UCLA; Donatello Telesca, UCLA

11:35 a.m. Time-Stratified LOESS Smoothers for Estimating and Testing Temporal Heterogeneity in Spatial Risk Patterns—✦Yannan Tang, UCI

11:50 a.m. Estimating Gestational Age from Maternal and Neonatal Anthropometry—✦Ana Maria Ortega-Villa, National Institutes of Health; Paul S Albert, National Cancer Institute

12:05 p.m. Application of Bayesian Analysis on Blood Lead Level Data for Children—✦Shailendra Banerjee, Centers for Disease Control

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

350 CC-West 304/305

Statistical Issues In Drug Development - 1—Contributed

Biopharmaceutical Section

Chair(s): Tian Dai,

10:35 a.m. Reversals in Early Phase Dose Finding Trials—✦Bethany Horton, University of Virginia; John O'Quigley, Universit'e Pierre et Marie Curie, ; Mark Conaway, University of Virginia

10:50 a.m. The Emerging and Merging Fields of Benefit-Risk and Health Technology Assessments—✦Susan Talbot, Amgen Ltd; Shahrul Mt-Isa, Merck; Jixian Wang, Celgene

11:05 a.m. Application of Bayesian Approach in Evaluating Rare Adverse Events During a Clinical Study—✦Ying Grace Li, Eli Lilly and Company

11:20 a.m. Assessment of Treatment Effects in Single Cases and Small Groups: Assumptions, Logic, Algorithm, Computations—✦Lev Sverdlov,

11:35 a.m. Monitoring Vaccine Safety by Studying Temporal Trend of Adverse Events Using VAERS—✦Jing Huang, University of Pennsylvania; Yi Cai, Pieces Technology; Jingcheng Du, University of Texas Health Science Center; Ruosha Li, University of Texas School of Public Health; Susan S Ellenberg, University of Pennsylvania; Sean Hennessy, University of Pennsylvania; Cui Tao, University of Texas Health Science Center; Yong Chen, University of Pennsylvania

11:50 a.m. Network Meta-Analysis: On the Use of the Standard Contrast-Based Approach in Disconnected Networks—✦Audrey Béliveau, University of Waterloo; Paul Gustafson, University of British Columbia

12:05 p.m. Three Intervals Used in Setting Quality Specification Limits—✦Yi Tsong, CDER, FDA; Xin Hu, George Washington University

351 CC-West 219

● Statistical Issues Specific the Therapeutic Areas- 3—Contributed

Biopharmaceutical Section

Chair(s): Dong Xi, Novartis Pharmaceuticals

10:35 a.m. A Graphical Dissection of the Log-Rank Test and Cox Proportional Hazards Model—✦Xiaofei Hu, Abbvie; Yabing Mai, AbbVie, Inc

10:50 a.m. Unexpected Safety Signals in Dose Escalation Process—✦Chunzhang Wu, Astellas Pharma Global Development, Inc.

11:05 a.m. Evaluating the Scan Interval in Oncology Trial—✦Liping Huang, Bayer Healthcare Pharmaceuticals; Fang Fang, TESARO

11:20 a.m. The Impact of Misspecification of Linear Modeling on the Prediction in SMART PK/PD Clinical Trials—✦Tian Zhao, Merck; Li Fan, Merck

11:35 a.m. Modeling Overall Survival Under Immuno-Oncology Therapies with Long-Term Survival Models—✦Junshui Ma, Merck & Co., Inc.; Keaven Anderson, Merck & Co., Inc.

11:50 a.m. Recurrent Events Analysis Using Landmark Andersen-Gill Model with Time-Varying Covariates—✦Zheyu Liu, Bayer Pharmaceuticals; Vivian Lanius, Bayer AG; Dejian Lai, The University of Texas Health Science Center at Houston

12:05 p.m. Correcting Treatment Effect for Treatment Switching in Randomized Oncology Trials—✦Jin Zhang,

352 CC-East 14

Clinical Trials: Recent Advances in Design and Inference—Contributed

Korean International Statistical Society

Chair(s): MinJae Lee, University of Texas McGovern Medical School

10:35 a.m. Flexible Stochastic Growth Models and Their Experimental Design—✦Nikolaos Demiris, Athens University of Economics and Business; Konstantinos Kalogeropoulos, London School of Economics; Nikolas Kantas, Imperial College London

10:50 a.m. A Note on Phase II Single-Arm Two-Stage Designs for Safety—✦Seongho Kim, Wayne State University; Weng Kee Wong, UCLA

11:05 a.m. What Is the Most Appropriate Time Point Cut to Give Treatment Under Emergency Setting?—✦Ja-An Lin, Food & Drug Administration; Laura Yee, NIH; Pei He, Genetech Inc

11:20 a.m. Estimation of the Dose-Response Curve in the Presence of Outcome Driven Dose Titrations—✦Zhuqing Liu, Eli Lilly; Yongming Qu, Eli Lilly and Company

11:35 a.m. Estimation of Treatment Effect in Enriched Clinical Trials: Application to Multiple Sclerosis—✦Rachel MacKay Altman, Simon Fraser University

11:50 a.m. Restricted Mean Survival Time as a Function of Restriction Time—✦Yingchao Zhong, University of Michigan; Douglas E. Schaubel, University of Michigan, Ann Arbor

12:05 p.m. Statistical Inference Problems in Sequential Parallel Comparison Design—✦Semhar Ogbagaber, FDA; Hsien-Ming James Hung, PhD, Food and Drug Administration; Yifan Cui, University of North Carolina at Chapel Hill

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

353 CC-West 122

Data Science—Contributed

Section on Statistical Computing

Chair(s): Brian Segal, Flatiron Health

10:35 a.m. Dispatches from the Tidyverse—✦Michael Anderson, University of Texas, San Antonio

10:50 a.m. A Grammar for Reproducible and Painless Extract-Transform-Load Operations on Medium Data—✦Ben Baumer, Smith College

11:05 a.m. Divide and Recombine Approaches for Fitting Smoothing Spline Models with Large Data Sets—✦Danqing Xu, University of California, Santa Barbara; Yuedong Wang, University of California, Santa Barbara

11:20 a.m. Evolution of Statistical Software and Quantitative Methods—✦Brandon LeBeau, University of Iowa; Ariel Aloe, University of Iowa

11:35 a.m. Eye-Tracking in Practice: Results from a Study on Human Postures—✦Juergen Symanzik, Utah State University; Eric McKinney, Utah State University; Breanna Studenka, Utah State University

11:50 a.m. KableExtra: Complex Table Made Easy—✦Hao Zhu, Institute for Aging Research; Timothy Tsai, Institute for Aging Research; Thomas G Travison, Institute for Aging Research

12:05 p.m. Collaborative Cognition for Commodity Price Prediction—Ritwik Chaudhuri, IBM Research, India; Ramasuri Narayanam, IBM Research, India; ✦Manish Kataria, IBM Research, India; Gyana Parija, IBM Research, India

354 CC-West 119

Topics in Machine Learning—Contributed

Section on Statistical Learning and Data Science

Chair(s): Todd Ogden, Columbia University

10:35 a.m. Using Q-Learning Method in Identify Optimal Treatment Regime—✦Haocheng Li, Hoffmann-La Roche Limited (Roche Canada); Vincent Shen, Hoffmann-La Roche Limited (Roche Canada); Hao Xu, Hoffmann-La Roche Limited (Roche Canada); Sylvia Hu, Roche-Genentech

10:50 a.m. High-Dimensional Sparse Generalized Eigenvalue Problem and Its Applications to Multivariate Statistics—✦Kean Ming Tan, University of Minnesota; Zhaoran Wang, Northwestern University; Han Liu, Northwestern University; Tong Zhang, Tencent Technology

11:05 a.m. Personalized Solution Recommendation for Google Cloud Marketplace—✦Tianhong He, Google; Sangho Yoon, Google

11:20 a.m. Statistical Modeling for Pooling and Analyzing Multi-Site Data Sets Using Maximum Mean Discrepancy—✦Hao Zhou, University of Wisconsin Madison

11:35 a.m. Model-Based Electronic Health Records Phenotyping from Only Positive and Unlabeled Data—✦Lingjiao Zhang, University of Pennsylvania; Naveen Muthu, University of Pennsylvania; Xiruo Ding, University of Pennsylvania; Daniel S Herman, University of Pennsylvania; Jinbo Chen, University of Pennsylvania

11:50 a.m. Structure and Sensitivity in Differential Privacy: Comparing K-Norm Mechanisms—✦Jordan Alexander Awan, Pennsylvania State University; Aleksandra Slavkovic, Pennsylvania State University

12:05 p.m. Optimization Over Nonconvex Constraints—✦Wooseok Ha, ; Rina Foygel Barber, University of Chicago

355 CC-West 218

Analysis of Complex Genetic Data—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Lingyun Ji, University of Southern California

10:35 a.m. Statistical Approaches for Meta-Analysis of Genetic Mutation Prevalence—✦Margaux Hujoel, Harvard T.H. Chan School of Public Health / Dana-Farber Cancer Institute; Danielle Braun, Harvard T. H. Chan School of Public Health; Giovanni Parmigiani , Harvard T.H. Chan School of Public Health / Dana-Farber Cancer Institute

10:50 a.m. On 'Reverse' Regression for Testing Association and Allele Frequency Estimation in Complex Pedigree—✦Lin Zhang, University of Toronto; Lei Sun, University of Toronto

11:05 a.m. SMMAT: a Powerful and Efficient Variant Set Mixed Model Association Test for Binary and Quantitative Traits in Whole Genome Sequencing Studies with Correlated Samples—✦Han Chen, The University of Texas Health Science Center at Houston

11:20 a.m. Efficient Statistical Methods for Genome-Wide Association Studies with Disease Family History Data—✦Annie Lee, Columbia University; Yuanjia Wang, Columbia University

11:35 a.m. Missing Genotypes in TDT—✦Gulhan Bourget, California State University, Fullerton

11:50 a.m. A Family-Informed Phenotype Imputation Approach for Genetic Analyzes—✦Yuning Chen, Boston University; Gina Marie Peloso, Boston University; Ching-Ti Liu, Boston University; Anita L. DeStefano, Boston University; James B. Meigs, Massachusetts General Hospital, Harvard Medical School; Josee Dupuis, Boston University School of Public Health

12:05 p.m. Genome-Wide Likelihood Ratio Tests Under Heterogeneity with an R Package GLRTH—✦Xiaoxia Han, Henry Ford Health System; Yongzhao Shao, New York University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

356 CC-West 217

Innovative Analysis Methods for Various Types of High-Throughput and Heterogeneous Data—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Yilin Zhang, University of Wisconsin-Madison

10:35 a.m. Iterated Curve Registration Extracts Signals from Noisy DNA Molecule Measurements—✦Subhrangshu Nandi, University of Wisconsin - Madison; Michael Newton, University of Wisconsin at Madison; David C Schwartz, University of Wisconsin - Madison

10:50 a.m. Analysis of Time-Course Microbiota Data Through Longitudinal Linear Combination Test—✦Elham Khodayari Moez, University of Alberta; Morteza Hajihosseini, University of Alberta; Anita Kozyrskyj, University of Alberta; Irina Dinu, University of Alberta

11:05 a.m. Comparative Evaluation of Statistical Methods in Infant Gut Microbiome Studies—✦Morteza Hajihosseini, University of Alberta; Elham Khodayari Moez, University of Alberta; Anita Kozyrskyj, University of Alberta; Irina Dinu, University of Alberta

11:20 a.m. Distance-Based Analysis with Quantile Regression Models—✦Shaoyu Li, University of North Carolina Charlotte; Yanqing Sun, University of North Carolina At Charlotte

11:35 a.m. Discovering Chromatin Interactions from Hi-C Data with Replicates Using Integrated Mixture Models—✦Frank Shen, Penn State University

11:50 a.m. Improved Accuracy Assessment for 3D Genome Reconstructions—✦Mark Segal, UCSF

12:05 p.m. Floor Discussion

TUESDAY

357 CC-West 204

Issues in Survey Design and Estimation—Contributed

Survey Research Methods Section, Social Statistics Section

Chair(s): Richard Levy, U.S. Census Bureau

10:35 a.m. Treatment of Unit Non-Response in Korean Social Survey—✦Goo Hyun Jung, Statistics Korea; Sunhee Lee, Michigan of University

10:50 a.m. Assessment of a Review Process for the 2017 Census of Agriculture—✦Denise Abreu, USDA/NASS

11:05 a.m. A Comparison of Clustering Algorithms Used for Multivariate Stratification of Primary Sampling Units—✦Thomas Chesnut, U.S. Census Bureau; Padraic Murphy, U.S. Census Bureau

11:20 a.m. Nested Subsamples: a Method for Achieving Flexibility in Annual Sample Sizes for a Continuous Multiyear Survey—Van Parsons, National Center for Health Statistics; ✦Chris Moriarity, National Center for Health Statistics

11:35 a.m. Efficiency Comparisons of Selective Editing Methods—✦Chin-Fang Weng, U.S. Census Bureau; Joanna Fane Lineback, U.S. Census Bureau

11:50 a.m. Detecting and Correcting Influential Values Using the Conditional Bias Approach : Application to the Survey of Household Spending—✦Christiane LaperriËre, Statistics Canada; Aliou Seydi, Statistics Canada

12:05 p.m. The Utility of Using Web Surveys to Measure and Estimate Health Outcomes, a Pilot Study—✦Yulei He, CDC/NCHS; Hee-Choon Shin, CDC/NCHS; Bill Cai, CDC/NCHS; Jennifer Parker, CDC/NCHS

Contributed Poster Presentations 10:30 a.m.—12:20 p.m.

358 CC- West Hall B

Contributed Poster Presentations: Biometrics Section—Contributed

Biometrics Section

Chair(s): Paul McNicholas, McMaster University

Biometrics Section

1 **Non-Inferiority Test for Clustered Matched-Pair Binary Data Using Bayesian Approach**—✦Isildinha Reis, Univ of Miami / Miller School of Medicine; Deukwoo Kwon, University of Miami; Jeesun Jung, NIAAA/NIH

2 **Iterated Multi-Source Exchangeability Models**—✦Roland Brown, University of Minnesota; Julian Wolfson, University of Minnesota

3 **Inferring Multimotor Dynamics Through Cargo Tracking**—✦Lauren Crow, Arizona State Univ

4 **Contributions of the SMART Project to Dementia Research and Statistical Modeling**—✦Richard Kryscio, Univ Of Kentucky; Erin L Abner, University of Kentucky; Peter T Nelson, University of Kentucky; David Fardo, University of Kentucky; Frederick A Schmitt, University of Kentucky

5 **A Recursive Partitioning Method for Optimizing Treatment Regimes in Multiple Outcome Survival Data with Application to Patients with Diabetes**—✦Kevin Doubleday, University of Arizona

6 **Using Synthetic Data to Incorporate External Information into Regression Model Estimation**—✦Tian Gu, University of Michigan; Jeremy M.G. Taylor, University of Michigan; Bhramar Mukherjee, University of Michigan; Wenting Cheng, University of Michigan

7 **Analyzing Correlated Rare Events Data in Rodent Developmental Toxicology Studies**—✦Shawn Harris, Social & Scientific Systems; Keith R. Shockley, National Institute of Environmental Health Sciences; Helen C. Cunny, National Institute of Environmental Health Sciences

8 **Imputation Methods in Mass Spectrometry Metabolomics Studies**—✦Triston Mosbacher, UC Davis Graduate Group in Biostatistics; Kyoungmi Kim, UC Davis Department of Public Health Sciences

9 **SuperLearning and Tree-Regression for Developing Treatment Rules That Optimize Health Outcomes**—✦Andre Kurepa Waschka, University of California, Berkeley

10 **Comparison of the Intrinsic Saturation of Firing Frequency in 4 Simple Neural Models**—✦Charles Eugene Smith, North Carolina State University; Petr Lansky, Czech Academy of Sciences

11 **On Survival Tree Under the Dependency Between Failure and Censoring**—✦Asanao Shimokawa, Tokyo University of Science; Etsuo Miyaoka, Tokyo University of Science

12 **Proteomics and Genomics Integration and Ovarian Cancer Survival**—✦Umut Ozbek, Icahn School of Medicine at Mount Sinai; Christopher Conley, University of California at Davis; Jie Peng, UC Davis; Pei Wang, Icahn School of Medicine at Mount Sinai

13 **Adaptively Incorporating Supplemental Information in Clinical Trials in the Presence of Population Heterogeneity**—✦Joseph Koopmeiners, Division of Biostatistics, University of Minnesota; Ales Kotalik, University of Minnesota; David Michael Vock, University of Minnesota

14 **Tensor Embeddings Reveal Complex Structures in Single Cell RNA-Seq Data**—✦Hillary Koch, Pennsylvania State University

15 **Variable Selection May Be Overrated**—✦Tristan Grogan, UCLA; David Elashoff, UCLA

16 **Kernel Method for Gene-Based Test Using Copula Model**—✦Yi Liu, Boehringer Ingelheim

17 **Using the Posterior Predictive Distribution as a Diagnostic Tool for Mixed Models**—✦Matthew Kramer, StatGrp/ARS/USDA

18 **Analyzing Longitudinal Clustered Count Data with Zero Inflation: Marginal Regression Modeling with Conway-Maxwell-Poisson Distribution**—✦Tong Kang, University of Florida; Somnath Datta, University of Florida; Steven Levy, University of Iowa

19 **Firth Adjustment for Parametric Current-Status Survival Analysis**—✦Hung-Mo Lin, Icahn School of Medicine at Mount Sinai; JOHN M WILLIAMSON, Centers for Disease Control and Prevention; HAE-YOUNG KIM, New York Medical College

20 **An Improved Inference Method for Multivariate Meta-Analysis and Meta-Regression**—✦Hisashi Noma, The Institute of Statistical Mathematics

21 **Nonlinear Models with Measurement Error: Application to Vitamin D**—✦Brenna Curley, Moravian College

22 **Analysis of Longitudinal Semicontinuous Data Using Marginalized Two-Part Model**—✦Miran Jaffa, American University of Beirut; Mulugeta Gebregziabher, Medical University of South Carolina; Ayad A Jaffa, American University of Beirut

23 **Barcoding of Hematopoietic Stem Cells: Application of the Species Problem**—✦Siyi Chen, Rice Univ Dept of Statistics; Marek Kimmel, Rice University; Katherine King, Baylor College of Medicine

International Chinese Statistical Association

24 **Multilevel piecewise models with random changepoints for longitudinal data with multiple features**—✦Yangxin Huang, University of South Florida

Biometrics Section

25 **A flexible class of parametric distributions for Bayesian linear mixed models**—✦Darren Wraith, Queensland University of Technology; Mohsen Maleki, Shiraz University; Reinaldo B. Arellano-Valle, Universidad CatÛlica de Chile

359 CC- West Hall B

Contributed Poster Presentations: Biopharmacutical Section—Contributed

Biopharmaceutical Section

Chair(s): Paul McNicholas, McMaster University

Biopharmaceutical Section

26 **Assessing Reproducibility When Making Mid-Course Changes in Clinical Trials Based on External Data**—✦Yingqi Shi, Johnson & Johnson-Janssen R&D; Grace Gao, Janssen R&D; Keith Karcher, Janssen R&D

27 **Methods to Handle Missing Outcome Data in Studies of Acute Illnesses Followed by Recovery**—✦Dashiell Fellini Young-Saver, University of California, Los Angeles; Jeffrey Gornbein, University of California, Los Angeles; Sidney Starkman, University of California, Los Angeles; Jeffrey Lawrence Saver, University of California, Los Angeles

28 **Sample Size and Assurance Probability Calculation in Multi-Regional Clinical Trials**—✦Zuoshun Zhang, Celgene Corporation

29 Nonparametric Survival Analysis with Delayed Treatment Effect—✦Kijoeng Nam, Merck; Nicholas Henderson, Johns Hopkins University; Dai Feng, Merck

30 **A Bayesian Adaptive Model-Based Approach for Dose Selection in a FGF21 2nd Gen Phase 1 Study**—✦Yuping Dong

31 **Defining a More Powerful Endpoint in Longitudinal Trials by Using Correlation Coefficients**—✦Ruji Yao, qing li, merck; wen-chi wu, merck

32 **A Bayesian-Frequentist Hybrid Sequential Design of a Single-Arm Study with Binary Outcome and Its Shiny App**—✦Yansong Cheng, Alkermes

33 **Monitoring Drug-Related Adverse Events with Longitudinally Collected Biomarkers**—✦Adarsh Joshi, Gilead Sciences, Inc.; Ron Yu, Gilead Sciences, Inc.; Yuanyuan Xiao, Gilead Sciences

34 **Applications of Neural Net Models to Identify Placebo Responders in Clinical Trials**—✦Mikhail Dmitrienko, Blue Valley North High School

35 **Control of Type I Error Rates in Bayesian Sequential Designs**—✦Haolun Shi, University of Hong Kong; Guosheng Yin, University of Hong Kong

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

36 **Clinical Trial Design Comparison with Covariate-Adjusted and Response Adaptive Randomization**—✦Wei Qiao, The University of Texas M.D. Anderson; Xuelin Huang, University of Texas MD Anderson Cancer Center; Jing Ning, The University of Texas M.D. Anderson Cancer Center

37 **Methods for Combining Controlled and Uncontrolled Clinical Trials**—✦Shuyan Sabrina Wan, Merck Research Lab; Yuan Feng, North Carolina State University; Hong Liu, Merck; Kenneth Koury, Pfizer

38 **Using Wearable Devices to Quantify Modulation of Circadian Rhythms**—✦Dmitri Volfson, Pfizer; Cici Bauer, Pfizer, Inc; Francois Gaudreault, Biogen Inc.; Cheng Chang, Pfizer; Arthur Simen, Takeda Inc; Travis Wager, Pfizer; Eve Pickering, Pfizer

39 **Sample Size Calculation for a Pilot Study**—✦Danielle Sim, UCLA; Chi-Hong Tseng, UCLA

40 **Use of Propensity Score and Disease Risk Score for Multiple Treatments with Time-To-Event Outcome**—DI ZHANG, University of Pittsburgh; ✦Jessica Kim, Division of Biometrics VII/ Office of Biostatistics/CDER, FDA

41 **Endpoint and Time-To-Event Analyzes in Interim Clinical Trial Reports**—✦Scott Diegel, University of Wisconsin-Madison; Ryan Zea, University of Wisconsin-Madison; Melissa Schultz, University of Wisconsin-Madison

42 **Univariate, Multivariate and Model-Based Prediction on Truncated Continuous Data with Shiny/R**—✦Qianqiu Li, Janssen Research & Development

43 **A Bayesian Adaptive Design in Cancer Phase I/II Trials with Drug Combinations Using Escalation with Overdose Control (EWOC) and Adaptive Randomization**—✦Sungjin Kim, Cedars-Sinai Medical Center; José L. Jiménez, Politecnico di Torino; Mourad Tighiouart, Cedars-Sinai Medical Center

44 **An Evaluation of Statistical Methods with Missing Data in Small Clinical Trials**—✦Takayuki Abe, Yokohama City University, School of Data Science; Kazuhito Shiosakai, Daiichi Sankyo Co., Ltd.; Manabu Iwasaki, Yokohama City University, School of Data Science

45 **Response to Regulatory Issues in an Adaptive Medical Device Study**—✦Jill Stankowski, ICON Plc

46 **A Comparison of MI and MMRM for Treatment of Missing Data**—✦Lori Davis, QST Consultations

47 **Evaluating the Impact of Missing Data Mechanisms and Imputation Methods in Analysis of Bivariate Longitudinal Data with Subject Effect**—✦Yonggang Zhao, Skyview Research; Qianqiu Li, Johnson & Johnson

48 **Some Statistical Issues Regarding to Assay Sensitivity in "Hybrid TQT" Study**—✦Dalong Huang, FDA/CDER; Janell Chen, FDA/ CDER; Yi Tsong, CDER, FDA; Qianyu Dang, FDA/CDER

49 **Sample Size in Adaptive Design with Treatment Selection**—✦Zejiang Yang, Syneos Health

50 **Sequential Parallel Comparison Design with Binary and Time-to-Event Outcomes**—✦Rachel Silverman, Merck & Co.; Anastasia Ivanova, University of North Carolina, Chapel Hill; Jason P Fine, University of North Carolina at Chapel Hill

51 **Power and Type I Error Assessments on Methods to Size Binomial Endpoints Under Unequal Randomization Ratios**—✦Rong Wang, Pfizer Inc

52 **The Modified Toxicity Probability Interval Design with Consideration of Late Onset Toxicities**—✦Xiaohui Huang, Gilead Sciences; Guan Xing, Gilead Sciences

53 **Event Projection for Blinded Studies**—✦Guan Xing, Xiaohui Huang, Gilead Sciences

54 **A Novel Approach of Using Prior Elicitation Information to Direct Design of a Phase 2 POC Study**—✦Geng Chen, GlaxoSmithKline; Jonathan Haddad, Glaxosmithkline

55 **Statistical Methods to Estimate Diagnostic Testing Accuracy of ULTE4 to Determine Aspirin Intolerance in Asthma Using Meta-Analysis Data**—✦Nan Zhang, Mayo Clinic; John Hagan, Mayo Clinic; Matthew Rank, Mayo Clinic; Yu-Hui Chang, Mayo Clinic; Rohit Divekar, Mayo Clinic; Erin O'Brien, Mayo Clinic; Gerald Volcheck, Mayo Clinic; Devyani Lal, Mayo Clinic; Patricia Erwin, Mayo Clinic; Harry Teaford, Mayo Clinic; Hirohito Kita, Mayo Clinic; Tanya Laidlaw, Harvard Medical school; Christina Hagan, Baylor College of Medicine

56 **Non-Inferiority Margins in Superiority/Non-Inferiority Seamless Clinical Trials**—✦Ellen Gurary, Boston University; Joe Massaro, Boston University

57 **Determination of Optimal Cut-Off Points for Biomarkers in Oncology Research**—Shu-Pang Huang, Bristol-Myers Squibb Co. ✦Tian Chen, Bristol-Myers Squibb Co.; Ye Feng, Bristol-Myers Squibb Co.; Ming Zhou, Bristol-Myers Squibb Company; Ramachandran Suresh, Bristol-Myers Squibb Co.

58 **Using Tradition to Guide Non-Traditional Decisions in Phase 1 Clinical Trials**—✦Paul Frankel, City of Hope

59 **PFS2: Event or Censor?**—✦Dongmei Lan, ICON Plc; JIll Stankowski, ICON Plc

60 **Imbalanced**—✦Thevaa Chandereng, University of Wisconsin Madison

61 **Seeking Optimal Oral Cancer Drug Combinations**—✦Ricardo Palafox, CSU Fullerton; Jessica Jaynes , CSU Fullerton

62 **Safety Data Presentations in USPIs: Methodological Considerations**—✦Adam Boyd, Array BioPharma Inc; Michael Pickard, Array BioPharma Inc

63 **Optimal Drug Combinations for Treating KB Oral Cancer**—✦Jose Toledo

64 **A Novel Outlier Test for Plate Based Dilution Bioassay**—✦Jerry W. Lewis, Biogen Idec

65 **Propensity Score Analysis in medication adherence**—✦Fanhui Kong, Wilkes University

66 **Missing data imputation in confirmatory clinical trials - a comparison case study**—✦Yue Song, PAREXEL; Sophie (Xiongfei) Wang, PAREXEL

360 CC- West Hall B

Contributed Poster Presentations: ENAR—Contributed

ENAR

Chair(s): Paul McNicholas, McMaster University

ENAR

67 **Strategies for Adjusting for Urinary Creatinine or Serum Lipids When Exposure Is Measured on Pooled Specimens**—✦Min Shi, NIEHS; Clarice Weinberg, National Institute of Environmental Health Sciences; David Umbach, National Institute of Environmental Health Sciences; Katie O'Brien, National Institute of Environmental Health Sciences

68 **Performance of Df-Adjustment and HCCM Methods in Heteroscedastic Factorial ANOVA Models**—✦T. Beasley, University of Alabama, Birmingham

69 **A Subregion-Based Burden Test for Simultaneous Identification of Susceptibility Loci and Sub-Regions Within**—✦Bin Zhu, NIH/NCI; Lisa Mirabello, National Institutes of Health; Nilanjan Chatterjee, Johns Hopkins University

70 **Probabilistic or Deterministic Data Linkage? Experience from Linking Cancer Registry Data with Health Claims Data**—✦Bin Huang, University of Kentucky; Quan Chen, University of Kentucky

361 CC- West Hall B

Contributed Poster Presentations: WNAR—Contributed

WNAR

Chair(s): Paul McNicholas, McMaster University

WNAR

71 **Generating Survival Times Using Cox Proportional Hazards Models with Cyclic Time-Varying Covariates**—✦Yunda Huang, Fred Hutchinson Cancer Research Center; Lily Zhang, Fred Hutchinson Cancer Research Center; Zong Zhang, Interlake High School; Peter Gilbert, Fred Hutchinson Cancer Research Center

72 A Bayesian Model for Repeated Measures Count Data with Multiple Inflated Values—✦Benjamin Rogers, UCLA

362 CC- West Hall B

Contributed Poster Presentations: Mental Health Statistics Section—Contributed

Mental Health Statistics Section

Chair(s): Paul McNicholas, McMaster University

Mental Health Statistics Section

73 **Patient- and Site-Level Factors Associated with Abstinence Outcome in a Multisite Clinical Trial of a Technology-Delivered Psychosocial Intervention for Substance Use Disorders**—✦Martina Pavlicova, Columbia University; Leila M. Vaezazizi, New York State Psychiatric Institue; Aimee N. C. Campbell, New York State Psychiatric Institute; Mei-Chen Hu, Columbia University; Edward V. Nunes, New York State Psychiatric Institute

74 **Models for Repeated Clustered Data with Informative Cluster Sizes with Applications in Psychiatry**—✦Ana-Maria Iosif, University of California, Davis; Laura M Tully, University of California Davis; Tara A Niendam, University of California Davis

75 **Sparse Causal Dynamic Network Modeling of fMRI**—✦Xuefei Cao, Brown University; Xi Luo, Brown University; Bjorn Sandstede, Brown University

363 CC- West Hall B

Contributed Poster Presentations: Statistics and Pharmacometrics Interest Group—Contributed

Statistics and Pharmacometrics Interest Group

Chair(s): Paul McNicholas, McMaster University

Statistics and Pharmacometrics Interest Group

76 **Use of Modified Risk Function in Drug Intervention Planning**—✦Myung Shin Sim, UCLA

364 CC- West Hall B

Contributed Poster Presentations: Section on Medical Devices and Diagnostics—Contributed

Section on Medical Devices and Diagnostics

Chair(s): Paul McNicholas, McMaster University

Section on Medical Devices and Diagnostics

77 **Preventing False Discovery of Heterogeneous Treatment Effect Subgroups in Randomized Trials**—✦Joseph Rigdon, Stanford University; Michael Baiocchi, Stanford University; Sanjay Basu, Stanford University School of Medicine

78 **Using Stratified Propensity Score Matching Approach** to Adjust Risk Assessment for Breast Reconstruction Patients—✦Jun Liu, UT MDACC; Liang Li, UT MD Anderson Cancer Center; Summer Elizabeth Summer, UT MDACC; Victor Joseph Hassid, UT MDACC; Jesse Creed Selber, UT MDACC; Charles Butler, UT MDACC; Patrick Bryan Garvey, UT MDACC; Donald Baumann, UT MDACC

79 **Statistical Analysis of Radiomics Data**—✦Samantha Morrison, Brown University; Firas Ahmed, Columbia University; Lin Lu, Columbia University; Constantine Gatsonis, Brown University; Binsheng Zhao, Columbia University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

80 **Parametric and Non-Parametric Statistical Methods to Detect Sleep Patterns from Accelerometer Data**—✦Margaret Banker, University of Michigan

81 **Bayesian Hierarchical Models for Voxel-Wise Classification of Prostate Cancer Using Nearest-Neighbor Gaussian Process**—✦Jin Jin, Division of Biostatistics, University of Minnesota; Joseph Koopmeiners, Division of Biostatistics, University of Minnesota; Gregory Metzger, University of Minnesota; Ethan Leng, University of Minnesota

82 **Visualizing Lupus Symptom Clusters**—✦Lauren Taylor Washington, Purdue University; Vetria Byrd, Purdue University

365 CC- West Hall B

SPEED: Innovations in Survey Sampling Designs: Administrative Data, Record Linkage, Non-Probability Samples, and More—Contributed

Survey Research Methods Section, Government Statistics Section, International Statistical Institute

Chair(s): Paul McNicholas, McMaster University

Government Statistics Section

1 **Using 100% Medicare Claims Data for Diabetes Surveillance: a Novel Framework**—✦Linda Andes, Centers for Disease Control & Prevention

Survey Research Methods Section

2 **Variance Estimation Under Model-Implied Randomization of Nonrandom Samples**—✦Vladislav Beresovsky, National Center for Health Statistics

3 **Addressing Challenges in an International Study with Propensity Scores: a Case Study from Indonesia**—✦Susan Edwards, RTI International

4 **Bayesian Methods for Stratified Sample Allocation Using Imperfect Information**—✦Jonathan Mendelson, University of Maryland; Joe Sedransk, University of Maryland

5 **Are Shoppers Representative of the Population? Using Geofenced Grocery and Convenience Stores to Represent the Population**—✦Davia Moyse, ICF; Matt Jans, ICF; Ronaldo Iachan, ICF; Lee Harding, ICF; Scott Worthge, MFour; James Dayton, ICF; Yangyang Deng, ICF; Tracy Visconti, MFour

Government Statistics Section

6 **NAICS 2017: a New Process Yields Interesting Results**—✦Sania Khan, US Bureau of Labor Statitics; Emily Thomas, US Bureau of Labor Statistics; Sharon S Stang, US Bureau of Labor Statitsics

Survey Research Methods Section

7 **Combining Probability and Nonprobability Samples for Population Inference**—✦Jill A Dever, RTI International

8 **Willingness to Collect Smartphone Sensor Measurements in a Dutch Probability-Based General Population Panel**—✦Bella Struminskaya, ; Vera Toepoel, Utrecht University; Peter Lugtig, Utrecht University; Barry Schouten, CBS

Government Statistics Section

9 **Different Linkage Methods, Same Results? Linking National Center for Health Statistics Survey Data to Centers for Medicare and Medicaid Administrative Records**—✦Cordell Golden, National Center for Health Statistics (NCHS); Adam Fedorowicz, National Center for Health Statistics (NCHS); Lisa B Mirel, National Center for Health Statistics (NCHS)

Survey Research Methods Section

10 **Sampling from Twitter: Can a Probability Sample Be Drawn to Target Hard to Reach Populations?**—✦Marcus Berzofsky, RTI International; Tasseli McKay, RTI International; Patrick Hsieh, RTI International; Amanda Smith, RTI Internatinal; Natasha Latzman, RTI International

11 **Can We Increase Contact Rates and Reduce Costs in a Longitudinal Survey by Including an SMS in the Contact Protocol? Results from an Embedded Experiment**—✦Anton Johansson, Statistics Sweden; Dan Hedlin, Stockholm university

Government Statistics Section

12 **Record Linkage as a Decision Problem**—✦Alan Karr, RTI International

Survey Research Methods Section

13 **USING FULLY BAYESIAN MRP to ESTIMATE ANALYTIC QUANTITIES**—✦Robert Petrin, Ipsos Public Affairs; Alexa DiBenedetto, Ipsos Public Affairs; Luke Vaicunas, Ipsos Public Affairs; Dominick Hannah, Ipsos Public Affairs; Atisha Amin, Ipsos Public Affairs

Government Statistics Section

14 **Reengineered Address Canvassing for the 2018 End-To-End Census Test**—✦Matthew Herbstritt,

Survey Research Methods Section

15 **Adaptive Head-To-Head Ranking: a New Method to Reduce Sample Size While Improving Data Quality**—✦Reuben McCreanor, SurveyMonkey; Jack Chen, SurveyMonkey

16 **When to Use Commercial Data for Improved Efficiency**—✦Edward English, NORC At the University of Chicago; Colm O'Muircheartaigh, NORC at the University of Chicago

17 **Samples, Unite! Understanding the Consequences of Combining Probability and Non-Probability Samples When Linking Records Is Difficult**—✦Benjamin Williams, Southern Methodist University

366 CC- West Hall B

SPEED: Recent Advances in Statistical Genomics and Genetics—Contributed

Biometrics Section, Section on Statistics in Genomics and Genetics, Section on Teaching of Statistics in the Health Sciences

Chair(s): Paul McNicholas, McMaster University

Biometrics Section

21 **Subset Testing and Analysis of Multiple Phenotypes**—✦Andriy Derkach, National Cancer Institute; Ruth Pfeiffer , National Cancer Institute

Section on Statistics in Genomics and Genetics

22 **ProxECAT: Proxy External Controls Association Test. a New Case-Control Gene Region Association Test Using Allele Frequencies from Public Controls**—✦Audrey Hendricks, University of Colorado - Denver; Stephen Billups, University of Colorado - Denver; Hamish Pike, University of Colorado-Aschutz Medical Campus; Eleftheria Zeggini, Wellcome Trust Sanger Institute; Stephanie Santorico, University of Colorado - Denver; Inís Barroso, Wellcome Trust Sanger Institute; Josee Dupuis, Boston University School of Public Health

Biometrics Section

23 **NanoStringDiffWeb: a Web-Based Tool for Differential Expression Analysis of NanoString NCounter Data**—✦Tingting Zhai, University of Kentucky; Hong Wang, Eli Lilly and Company; Arnold Stromberg, University of Kentucky; Chi Wang, University of Kentucky; Jinpeng Liu, Markey Cancer Center, University of Kentucky; Isaac Hands, Markey Cancer Center, University of Kentucky; Eric B. Durbin, Markey Cancer Center, University of Kentucky; Heidi Weiss, Markey Cancer Center, University of Kentucky

Section on Statistics in Genomics and Genetics

24 **Three-Component Dissection of Tumor Cellular Heterogeneity by a Bayesian Hierarchical Model**—✦Tao Wang, UT Southwestern Medical Center

25 **Visualization Methods for RNA-Sequencing Data Analysis**—✦Lindsay Rutter, Iowa State University; Dianne Cook, Monash University

26 **A Bayesian Gene-Based GWAS Analysis of Osteosarcoma Trio Data Using a Hierarchically Structured Prior**—✦Yi Yang, University of Minnesota; SAONLI BASU, University of Minnesota; Lisa Mirabello, National Institutes of Health; Logan Spector, University of Minnesota; Lin Zhang, University of Minnesota

Biometrics Section

27 **Differences in Gene Silencing Effect of MiRNA and Methylation in Two Histologic Subtypes**—✦Prabhakar Chalise, University of Kansas Medical Center

Section on Statistics in Genomics and Genetics

28 **SAVER: Gene Expression Recovery for UMI-Based Single Cell RNA Sequencing**—✦Mo Huang, University of Pennsylvania; Jingshu Wang, University of Pennsylvania; Mingyao Li, University of Pennsylvania; Nancy Zhang, University of Pennsylvania

29 Dysregulated Expression of Glucose Metabolic Enzymes Is Associated with Poor Prognosis of Patients with Hepatocellular Cancer—✦Xiaoli Zhang, Ohio State University; Kalpana Ghoshal, The Ohio State University

Biometrics Section

30 **An Ensemble RNA-Seq Differential Analysis Method for False Discovery Rate Control**—✦Dongmei Li, University of Rochester; Ananta Paine, University of Rochester; Timothy D. Dye, University of Rochester

31 **A Two-Stage Microbial Association Mapping Framework with Advanced FDR Control**—✦Jiyuan Hu, New York University School of Medicine; Huilin Li, New York University; Hyunwook Koh, NYU langone medical center; Linchen He, NYU langone medical center; Martin Blaser, New York University School of Medicine

Section on Statistics in Genomics and Genetics

32 **Penalized Latent Dirichlet Allocation Model in Single Cell RNA Sequencing**—✦Xiaotian Wu, Brown University; Zhijin Wu, Brown University; Hao Wu, Emory University

33 **THREE-WAY CLUSTERING of MULTI-TISSUE MULTI-INDIVIDUAL GENE EXPRESSION DATA USING SEMI-NONNEGATIVE TENSOR DECOMPOSITION**—✦Miaoyan Wang, UC Berkeley; Jonathan Fischer, UC Berkeley; Yun S. Song, UC Berkeley

Section on Teaching of Statistics in the Health Sciences

34 **Fisher's Exact Approach for Post Hoc Analysis of a Chi-Squared Test**—✦Guogen Shan, University of Nevada Las Vegas; Shawn Shawn Gerstenberger, University of Nevada Las Vegas

Biometrics Section

35 **Four-Step Cross-Validation Procedure in Biomarker Prognostic Cox Model Development**—✦Jianying Zhang, Ohio State University; Lianbo Yu, Ohio State University; Charles L Shapiro, Mount Sinai Medical Center

36 **Microbial Network Estimation Using Compositional Graphical Lasso**—✦Chuan Tian, Oregon State University; Duo Jiang, Oregon State University; Tom Sharpton, Oregon State University; Yuan Jiang, Oregon State University

37 **Differential Abundance Analysis with Empirical Bayes Shrinkage Estimation of Variance (DASEV) for Proteomic and Metabolomic Data**—✦Zhengyan Huang, ; Chi Wang, University of Kentucky; Arnold Stromberg, University of Kentucky

38 **A Probabilistic Model to Estimate the Temporal Order of Pathway Mutations During Tumorigenesis**—✦Menghan Wang, University of Kentucky

39 **Using Area Under PSD to Detect the Tumor Heterogeneity Difference with Single Cell Data**—✦Yian Chen, Moffitt Cancer Center & Research Institute; Jiannong Li, Moffitt Cancer Center & Research Institute; Inna Smalley, Moffitt Cancer Center & Research Institute; Michael J Schell, Moffitt Cancer Center & Research Institute; Keiran S Smalley, Moffitt Cancer Center & Research Institute

40 **Identifying Direct Targets with Knockdown Experiment: An Adaptive Approach Detecting Strong Signals**—✦Leying Guan, Stanford University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Contributed Poster Presentations 11:35 a.m.—12:20 p.m.

367 CC- West Hall B

SPEED: Statistical Epidemiology—Contributed

Section on Statistics in Epidemiology, Section on Teaching of Statistics in the Health Sciences, Section on Medical Devices and Diagnostics

Chair(s): Paul McNicholas, McMaster University

Section on Statistics in Epidemiology

1 **Meta-Analysis of the Difference of Medians**—✦Sean McGrath, McGill University; Andrea Benedetti, Respiratory Epidemiology and Clinical Research Unit, McGill University Health Centre; Russell Steele, McGill University

Section on Teaching of Statistics in the Health Sciences

2 **Model Validation of Time-To-Event Analyzes via the Concordance Statistic**—✦Samantha-Jo Caetano, McMaster University

Section on Statistics in Epidemiology

3 **A Comparative Longitudinal Study of the Distributions of Observed Versus Estimated Untreated Natural Blood Pressures**—✦Saryet Kucukemiroglu

4 **A Comparison of Algorithm Development Methods for Advanced Stage ER+/HER2- Breast Cancer**—✦Ruihua Yin, HealthCore, LLC; Daniel C Beachler, HealthCore, Inc.; Stephan Lanes, HealthCore, Inc.; Kelsey Gangemi, HealthCore, Inc.; Daina Esposito, HealthCore, Inc.; Cynthia de Luise, Pfizer, Inc.

5 **Meta-Analysis of Depression on the Risk of Fracture and Bone Loss in Prospective Cohort Studies**—✦Qing Wu, University of Nevada, Las Vegas; Baowen Liu, University of Nevada, Las Vegas; Sajib Tonmoy, University of Nevada, Las Vegas

6 **Expected Versus Observed Effects on Conditional Probability for Clinical Trial Futility Assessment**—✦Zhibao Mi, VA CSPCC Perry Point; Kelsey A.L. Alexovitz, VA Cooperative Studies Program Coordinating Center; Xiaoli Lu, VA Cooperative Studies Program Coordinating Center; Kousick Biswas, VA Cooperative Studies Program Coordinating Center; Joseph F Collins, VA Cooperative Studies Program Coordinating Center

7 **Logistic Regression with a Right-Skewed Exposure Variable Measured in Pools and Subject to Errors**—✦Dane R Van Domelen, Rollins School of Public Health, Emory University; Emily M Mitchell, Agency for Healthcare Research and Quality; Enrique F Schisterman, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Neil Perkins, DIPHR/NICHD/NIH; Robert Lyles, Emory University

8 **Invalid Statistical Inference Due to Social Network Dependence**—✦Youjin Lee, Johns Hopkins School of Public Health; Elizabeth Ogburn, Johns Hopkins School of Public Health

9 **Compatible Estimates for the Risk Ratio, Odds Ratio, and Risk Difference**—✦Charles Rose, CDC

10 A Joint Model of Opioid Treatment Admissions and Deaths for Adults and Adolescents in Ohio Counties—✦David Kline, Ohio State University; Staci Hepler, Wake Forest University

Section on Teaching of Statistics in the Health Sciences

11 **A Comparison of Some Propensity Score Methods**—✦Yuping Wu, Cleveland State University; Amgad Mohammed Alajlan, Cleveland State University

Section on Statistics in Epidemiology

12 **Comparison of Group Testing Algorithms for Clustered Data**—✦Ana Best, NIH NCI DCEG Biostatistics Branch; Paul S Albert, National Cancer Institute; Yaakov Malinovsky, University of Maryland Baltimore County Dept. of Mathematics and Statistics

13 **Incorporating Genetic Network into Case-Control Association Studies with High-Dimensional DNA Methylation Data**—✦Hokeun Sun, Pusan National University

Section on Medical Devices and Diagnostics

14 **Application of External Concordance Method**—✦Wenliang Yao, Astrazeneca; Pralay Mukhopadhyay, Astrazeneca

Section on Statistics in Epidemiology

15 **Estimating Memory Decline Among Nondemented Older Adults**—✦Wenzhu Mowrey, Albert Einstein College of Medicine; Ellen Grober, Albert Einstein College of Medicine; Molly E Zimmerman, Albert Einstein College of Medicine; Mindy J Katz, Albert Einstein College of Medicine; Charles B Hall, Albert Einstein College of Medicine; Martin J Sliwinski, Pennsylvania State University; Richard B Lipton, Albert Einstein College of Medicine

16 **A Probabilistic Linkage Approach for Combining VA and State Prescription Drug Databases for Evaluating Veterans' Receipt of Long Term Opioid Therapy Across Multiple Systems**—✦Larry Cook, University of Utah; Tess A Gilbert, HSR&D Center to Improve Veteran Involvement in Care ; Kathleen F Carlson, HSR&D Center to Improve Veteran Involvement in Care

17 **Spatio-Temporal Analysis of Diabetes-Related Amputation Among Medicare Beneficiaries with Diabetes, 2001-2013**—✦YanFeng Li, Centers for Disease Control and Prevention; Yiling Cheng, Centers for Disease Control and Prevention; Deborah B. Rolka., Centers for Disease Control and Prevention; Hui Xie, CDC; Linda Andes, Centers for Disease Control & Prevention; Meera Srinivasan, Centers for Disease Control and Prevention; Edward Gregg, Centers for Disease Control and Prevention

368 CC- West Hall B

SPEED: Statistics for Biopharmaceutical Studies—Contributed

Biopharmaceutical Section, Section on Bayesian Statistical Science

Chair(s): Paul McNicholas, McMaster University

Biopharmaceutical Section

21 **Probabilistic Modeling of Sleep and Awake States** in Alzheimer's Disease—✦Cici Bauer, Pfizer, Inc; Charmaine Demanuele, Pfizer, Inc. ; Dmitri Volfson, Pfizer

TUESDAY

22 **Integrative Statistical Analysis Pipeline for RNA-Seq and NanoString with Application to Gene Expression Data of Cancer Patients**—✦Jeea Choi, Novartis Pharmaceuticals; Catarina D. Campbell, Novartis Institutes for BioMedical Research; Xiaoshan Wang, Novartis Pharmaceuticals; He Wei, Novartis Pharmaceuticals; Robinson Douglas, Novartis Pharmaceuticals; Stephane Wong, Novartis Pharmaceuticals; Bin Fu, Novartis Pharmaceuticals; Rebecca Leary, Novartis Institutes for BioMedical Research; Kavitha Venkatesan, Novartis Institutes for BioMedical Research; Ying A Wang, Novartis Pharmaceuticals

23 **Bridging Information Between Dose-Response Curves Across Populations in Early Phase Clinical Trials**—✦Moreno Ursino, Inserm DR PA 6

24 **A Simultaneous PK/PD Model for Muscle Relaxant Using Muscle Twitch Counts**—✦Elizabeth Sigworth, ; Matthew S Shotwell, Vanderbilt University

25 **STEPDOWN TESTING PROCEDURES for DOSE FINDING STUDY with ADAPTIVE DESIGN**—✦Gang Jia, Merck & Co.

26 **Conditional Power Calculation for the Interim Monitoring of Cluster-Randomized Trials with Interval-Censored Endpoints**—✦Kaitlyn Cook, Harvard University; Rui Wang, Harvard Pilgrim HealthCare Institute

27 **Explore Modified Organ Dysfunction Score System to Improve the Prediction of Survival**—✦Grace Zhang, GSK

28 **Discovering Biomarkers Jointly Modeled with Multiple Efficacy Variables in Early Phase Clinical Trials**—✦Danni Yu, Eli Lilly and Company

29 **Extended Rank Tests for Analyzing Recurrent Event Data**—✦Qiang Zhao, ; Mark Chang, Veristat; Michael LaValley, Boston University; Joseph M. Massaro, Boston University; Bin Zhang, Seqirus; Kathryn Lunetta, Boston University

30 **A Study in the Use of Unsupervised Random Forest in the Analysis of Data Sets Composed of Categorical Variables/Features**—✦Nelson Lee Afanador, Merck; Richard Baumgartner, Merck; Dai Feng, Merck

31 **A Statistical Evaluation of Cardiovascular Measurements Collected via Mobile Health Technology and Traditional Tools**—✦Qinlei Huang, Merck; Lori Mixson, Merck

32 **Method for Evaluating Longitudinal Follow-Up Frequency: Application to Dementia Research**—✦Leah Suttner, University of Pennsylvania; Sharon X Xie, University of Pennsylvania

33 **Performance Comparison of Post-Hoc Subgroup Search Algorithms for Clinical Trials**—✦Victor Talisa, University of Pittsburgh; (Joyce) Chung-Chou H. Chang, University of Pittsburgh

34 **Relationship Between ORR, PFS and OS in Patients Treated with Anti-PD1/PDL1 Therapies**—✦Jiabu Ye, AstraZeneca; Pralay Mukhopadhyay, Astrazeneca; Xiang Ji, AstraZeneca

35 **Real-Time Study Milestone Projection in Clinical Trials with Time-To-Event Endpoints**—✦Yanping Liu, Merck & Co.; Gang Jia, Merck & Co.

Section on Bayesian Statistical Science

36 **Sensitivity to Infusion and Blood Draw Time Recording Errors in Pharmacokinetic Modeling**—✦Hannah Weeks, Vanderbilt University; Matthew S Shotwell, Vanderbilt University

Biopharmaceutical Section

37 **A Testing Paradigm for Earl Biomedical Research with Many Correlated Tests**—✦Robert Montgomery, ; Jonathan D Mahnken, University of Kansas Medical Center

38 **Tobit Regression for Modeling Mean Survival Time Using Data Subject to Multiple Sources of Censoring**—✦Qi Gong, Gilead; Douglas E. Schaubel, University of Michigan, Ann Arbor

Invited Sessions 2:00 p.m.—3:50 p.m.

380 CC-West 206/207

Bringing Intro Stats into a Multivariate and Data-Rich World—Invited

Section on Statistical Education

Organizer(s): Jeff Witmer, Oberlin College

Chair(s): Ann Cannon, Cornell College

2:05 p.m.	Inference in Three Hours, and More Time for the Good Stuff—✦Allen Downey, Olin College of Engineering
2:25 p.m.	Multivariable Thinking with Data Visualization—✦Kari Lock Morgan, Pennsylvania State University
2:45 p.m.	Multivariate Thinking and the Introductory Statistics Course: Preparing Students to Make Sense of a World Full of Observational Data—✦Nicholas J. Horton, Amherst College; Sarah C Anoke, Harvard TH Chan School of Public Health; Brendan Seto, Amherst College
3:05 p.m.	Intro Stats and Intro Data Science: Do We Need Both?—✦Mine Cetinkaya-Rundel, Duke University
3:25 p.m.	Disc: Jeff Witmer, Oberlin College
3:45 p.m.	Floor Discussion

381 CC-West 212

● High-Dimensional Nonparametric Statistics—Invited

Section on Nonparametric Statistics, Section on Statistical Learning and Data Science, IMS, SSC

Organizer(s): Lingzhou Xue, Penn State University and National Institute of Statistical Sciences

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Chair(s): Lan Wang, University of Minnesota

2:05 p.m. High-Dimensional Sign Tests for the Direction of a Skewed Single-Spiked Distribution—✦Davy Paindaveine, Université libre de Bruxelles; Thomas Verdebout, Université libre de Bruxelles

2:30 p.m. Robust Estimation, Efficiency, and Lasso Debiasing—✦Po-Ling Loh, UW-Madison

2:55 p.m. Pivotal Estimation and Confidence Bands for High-Dimensional Linear Models with Error-in-Variables—✦Alexandre Belloni, Duke University; Victor Chernozhukov, MIT; Abhishek Kaul, WSU; Mathieu Rosenbaum, Ecole Polytechnique; Alexandre B. Tsybakov, CREST, ENSAE, Universite Paris-Saclay

3:20 p.m. MASES: a Nonparametric Dimension Reduction Approach—✦Hui Zou, University of Minnesota; Qing Mai, Florida State University; Xin Zhang, Florida State University

3:45 p.m. Floor Discussion

382 CC-West 120

Novel Statistical Methodology for Insurance and Risk Management—Invited

Section on Risk Analysis, Business and Economic Statistics Section, SSC

Organizer(s): Jean-Francois Begin, Simon Fraser University

Chair(s): Jean-Francois Begin, Simon Fraser University

2:05 p.m. Maximum Likelihood Estimation of First-Passage Structural Credit Risk Models Correcting for the Survivorship Bias—✦Mathieu Boudreault, Université du Québec ‡ Montréal; Diego Amaya, Wilfrid Laurier University; Don L. McLeish, University of Waterloo

2:35 p.m. Climate Projections, Teleconnections and Estimating Risks for Index-Based Insurance—✦Robert James Erhardt, Wake Forest University; Zhuoli Jin, Wake Forest University; Leland Kent, Wake Forest University

3:05 p.m. Predicting High-Cost Members in the HCCI Database—✦Brian Hartman, Brigham Young University; Rebecca Owen, HCA Solutions; Zoe Gibbs, Brigham Young University

3:35 p.m. Floor Discussion

383 CC-West 109

■ ● New Developments in Sensitivity Analysis for Unmeasured Confounding—Invited

Section on Statistics in Epidemiology, ENAR, Health Policy Statistics Section

Organizer(s): Liangyuan Hu, Icahn School of Medicine at Mount Sinai

Chair(s): Chenyang Gu, Harvard Medical School

2:05 p.m. Sensitivity Analysis in Multilevel Models—✦Nicole Bohme Carnegie, Montana State University; Jennifer L Hill, New York University; Masataka Harada, Fukuoka University; Vincent Dorie, New York University

2:30 p.m. Assessing Sensitivity to Unmeasured Confounding with Multiple Treatments and a Binary or Survival Outcome: A Bayesian Approach—✦Liangyuan Hu, Icahn School of Medicine at Mount Sinai; Chenyang Gu, Harvard Medical School; Michael Lopez , Skidmore College

2:55 p.m. A Comparison of Bayesian and Monte Carlo Sensitivity Analysis for Unmeasured Confounding—✦Lawrence McCandless, Simon Fraser University; Paul Gustafson, University of British Columbia

3:20 p.m. Causal Inference Using a Bayesian Nonparametric Model with Informative Priors on Sensitivity Parameters—✦Jason Roy, University of Pennsylvania

3:45 p.m. Floor Discussion

384 CC-West 222

■ Advances in Animal Movement Modeling—Invited

JABES-Journal of Agricultural, Biological, and Environmental Statistics, Section on Statistics and the Environment

Organizer(s): Mevin Hooten, Colorado State University

Chair(s): Mevin Hooten, Colorado State University

2:05 p.m. Imputation Approaches for Animal Movement Modeling—✦Henry Scharf, Colorado State University; Mevin Hooten, Colorado State University; Devin Johnson, Alaska Fisheries Science Center (NOAA)

2:30 p.m. Multi-Scale Modeling of Animal Movement and General Behavior Data Using Hidden Markov Models with Hierarchical Structures—✦Vianey Leos Barajas, Iowa State University; Eric Gangloff, Station d'Ecologie Théorique et Expérimentale du CNRS; Timo Adam, Bielefeld University; Roland Langrock, Bielefeld University; Juan Morales, INIBIOMA-CRUB CONICET

2:55 p.m. Bayesian Inference for Multistate Step-and-Turn Animal Movement in Continuous Time—✦Alison Parton, University of Sheffield; Paul G Blackwell, University of Sheffield

3:20 p.m. Hierarchical Nonlinear Spatio-Temporal Agent-Based Models for Collective Animal Movement—✦Patrick McDermott, University of Missouri; Christopher K. Wikle, University of Missouri; Joshua Millspaugh, University of Montana

3:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

385 CC-West 110

■ ● Appropriate Estimators for Various Clinical Trial Estimands: Are We There Yet?—Invited

Biopharmaceutical Section, ENAR, WNAR

Organizer(s): Pilar Lim, PhD, Janssen Research & Development, LLC

Chair(s): Yun Zhang, Janssen Research & Development, LLC

2:05 p.m. What Do We Know About Estimators for the Treatment Policy Estimand?—✦Elena Polverejan, Janssen R&D; Vladimir Dragalin, Janssen R&D

2:30 p.m. Performance of Pattern Mixture Model Estimators with and Without Patient-Level Imputation—Bohdana Ratitch, IQVIA; ✦Ilya Lipkovich, IQVIA; Michael O'Kelly, IQVIA

2:55 p.m. Undiluting the Treatment Effect—✦Thomas Permutt, Food and Drug Administration

3:20 p.m. Disc: Craig Mallinckrodt, PhD, Eli Lilly and Company

3:45 p.m. Floor Discussion

386 CC-West 119

■ ● Recent Developments in Integrating Multiple-Omics Data in Complex Diseases—Invited

ENAR, International Chinese Statistical Association, WNAR, SSC

Organizer(s): Li Hsu, Fred Hutchinson Cancer Research Center, USA; Yu-Ru Su, Fred Hutchinson Cancer Research Center

Chair(s): Yu-Ru Su, Fred Hutchinson Cancer Research Center

2:05 p.m. Constructing Tumor-Specific Gene Regulatory Networks Based on Sample with Tumor Purity Heterogeneity—✦Pei Wang, Icahn School of Medicine at Mount Sinai ; Francesca Petralia, Icahn School of Medicine at Mount Sinai; Li Wang, Icahn School of Medicine at Mount Sinai; Jie Peng, UC Davis

2:25 p.m. A Multivariate Mixed-Effects Selection Model Framework for Batch-Processed Proteomics Data with Nonignorable Missingness—Jiebiao Wang, Carnegie Mellon University; Pei Wang, Icahn School of Medicine at Mount Sinai ; Donald Hedeker, University of Chicago; ✦Lin Chen, University of Chicago

2:45 p.m. Variation and Genetic Control of Protein Abundance in Human Tissues—✦Hua Tang, Stanford Dept. of Genetics

3:05 p.m. A General Framework for Integrating GWAS Data with Molecular Endophenotypes—✦Wei Pan, University of Minnesota

3:25 p.m. A Versatile and Adaptive Multiple Functional Annotations-Based Association Test of Whole-Genome Sequencing Data—✦Peng Wei, The University of Texas MD Anderson Cancer Center; Yiding Ma, The University of Texas MD Anderson Cancer Center

3:45 p.m. Floor Discussion

387 CC-West 213

Foundations of Data Science—Invited

IMS, Section on Statistical Learning and Data Science, Royal Statistical Society, SSC

Organizer(s): Sofia C Olhede, University College London

Chair(s): Sofia C Olhede, University College London

2:05 p.m. A Statistical View on Optimal Transport: Inference, Algorithms, Applications—✦Axel Munk, University of Goettingen; Joern Schrieber, Department for Mathematics and Computer Science; Max Sommerfeld, Department for Mathematics and Computer Science; Carla Tameling, Department for Mathematics and Computer Science

2:30 p.m. Large Numbers of Explanatory Variables—✦Heather Battey, Imperial College London; David Cox, Nuffield College

2:55 p.m. A Fast Algorithm with Minimax Optimal Guarantees for Topic Models with an Unknown Number of Topics—✦Florentina Bunea, Cornell University

3:20 p.m. Disc: Patrick J Wolfe, Purdue University

3:45 p.m. Floor Discussion

388 CC-West 122

■ Statistical and Computational Advances in Cancer Genomics with Application to Precision Medicine—Invited

Section on Statistics in Genomics and Genetics, SSC

Organizer(s): Ronglai Shen, Memorial Sloan-Kettering Cancer Center

Chair(s): Ronglai Shen, Memorial Sloan-Kettering Cancer Center

2:05 p.m. Distinguishing Second Primary Cancers from Metastases: Statistical Challenges in Testing Clonal Relatedness of Tumors—✦Colin B Begg, Memorial Sloan Kettering Cancer Center

2:30 p.m. Tumor Heterogeneity in Hepatocellular Carcinoma and Intrahepatic Cholangiocarcinoma—✦Ruibin Xi, Peking University

2:55 p.m. Unsupervised Learning for Deciphering Mutational Signatures in Human Cancer—✦Ludmil B Alexandrov, University of California, San Diego; Velimir V Vesselinov, Los Alamos National Lab; Boian S Alexandrov, Los Alamos National Lab

3:20 p.m. Predicting Cancer Outcomes from Genomics Data—✦Peter Campbell, Wellcome Trust Sanger Institute

3:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

389 CC-West 209

■ Improving Survey Data Quality with Machine Learning Techniques—Invited

Survey Research Methods Section, Social Statistics Section, Government Statistics Section

Organizer(s): Stephanie Eckman, RTI International

Chair(s): Stephanie Eckman, RTI International

2:05 p.m. Artificial Intelligence (AI)-Enhanced Applications to Survey-Specific Imputation Tasks to Achieve Time and Cost Efficiencies—✦Steven B. Cohen, RTI International

2:20 p.m. Predicting Panel Drop-Outs with Machine Learning—✦Christoph Kern, University of Mannheim

2:35 p.m. Dynamic, Personalized Instruments via Responsive Matrix Sampling with High-Dimensional Covariates—Sean Taylor, Facebook; Curtiss Cobb, Facebook; ✦Chelsea Zhang, UC Berkeley

2:50 p.m. A Comparison of Automatic Algorithms for Occupation Coding—✦Malte Schierholz, Institute for Employment Research

3:05 p.m. The Use of Machine Learning Methods to Improve the US National Resources Inventory Survey—✦Zhengyuan Zhu, Iowa State University

3:20 p.m. Disc: Frauke Kreuter, Joint Program in Survey Methodology

3:35 p.m. Floor Discussion

390 CC-West Ballroom A

■ ● Accessing Resources from the Web in Data Analysis—Invited

Section on Statistical Computing, Section for Statistical Programmers and Analysts, Section on Statistical Learning and Data Science

Organizer(s): Jennifer Bryan, RStudio, University of British Columbia

Chair(s): Jennifer Bryan, RStudio, University of British Columbia

2:05 p.m. Harnessing the Power of the Web via R Clients for Web APIs—✦Lucy D'Agostino McGowan, Vanderbilt University

2:30 p.m. What You Can, Can't, and Shouldn't Do with Social Media Data—✦Rachael Tatman, --

2:55 p.m. Writing Useful and Maintainable Client Libraries—✦Craig Citro, Google, Inc

3:20 p.m. Harnessing the Power of Open Data on the Web—Karthik Ram, University of California, Berkeley; ✦Scott Chamberlain, University of California, Berkeley

3:45 p.m. Floor Discussion

391 CC-West 224

■ ● Statistical Advancements in Forestry, Ecology and Climate Modeling—Invited

International Indian Statistical Association, Section on Statistics and the Environment, Section on Statistical Computing

Organizer(s): Abhi Datta, Johns Hopkins Bloomberg School of Public Health

Chair(s): Joshua Keller, Johns Hopkins Bloomberg School of Public Health

2:05 p.m. Hierarchical Spatial Model for Creating Global Maps of Plant Trait Distribution—✦Abhi Datta, Johns Hopkins Bloomberg School of Public Health

2:30 p.m. A Stochastic Generator of Global Monthly Wind Energy with Tukey G-and-H Autoregressive Processes—✦Marc G Genton, King Abdullah University of Science and Technology; Jaehong Jeong, KAUST; Yuan Yan, KAUST; Stefano Castruccio, University of Notre Dame

2:55 p.m. Bayesian Spatial Process Models for High-Dimensional Finite Population Sampling—✦Sudipto Banerjee, UCLA School of Public Health; Alec Goldstein-Chan, University of California Los Angeles

3:20 p.m. Large and Non-Stationary Spatial Fields: Quantifying Uncertainty in the Pattern Scaling of Climate Models—✦Douglas William Nychka, NCAR

3:45 p.m. Floor Discussion

392 CC-West 306

Remembering Ingram Olkin—Invited

Memorial, History of Statistics Interest Group

Organizer(s): Yulia Gel, University of Texas at Dallas; Amanda L. Golbeck, University of Arkansas for Medical Sciences

Chair(s): Nancy Flournoy, University of Missouri

2:05 p.m. Ingram Olkin: Multivariate Analysis, Inequalities, and Majorization—✦Michael D. Perlman, University of Washington

2:30 p.m. Ingram Olkin's Contributions to Meta-Analysis—✦Larry Hedges, Northwestern University

2:55 p.m. Personal Reminisces About Ingram Olkin—✦Allan Sampson, University of Pittsburgh

3:20 p.m. Ingram Olkin: a Mover and Shaker for Women in Statistics—✦Amanda L. Golbeck, University of Arkansas for Medical Sciences

3:45 p.m. Floor Discussion

Invited Panels 2:00 p.m.—3:50 p.m.

393 CC-West 301

■ ● **A Life Cycle View of Statistics—Invited**

Section on Physical and Engineering Sciences, Section on Statistical Learning and Data Science, Section on Statistical Consulting, SSC

Organizer(s): David Steinberg, Tel Aviv University

Chair(s): David Steinberg, Tel Aviv University

Panelists: ✦Laura Freeman, Institute for Defense Analysis

✦Ron S Kenett, KPA Group

✦John Peterson, Glaxo-Smith-Kline

✦Agus Sudjianto, Wells Fargo

3:40 p.m. Floor Discussion

Topic Contributed Sessions 2:00 p.m.—3:50 p.m.

394 CC-West 203

■ ● **Recent Advances in Cognitive Diagnosis Modeling—Topic Contributed**

Mental Health Statistics Section, American Educational Research Association, Journal of Educational and Behavioral Statistics

Organizer(s): Gongjun Xu, University of Michigan

Chair(s): Yuqi Gu, University of Michigan

2:05 p.m. An Exploration of Latent Structure in Process Data—✦Jingchen Liu, Columbia University; Yunxiao Chen, Emory University; Xueying Tang, Columbia University; Zhi Wang, Columbia University

2:25 p.m. A Joint Modeling Framework Using Responses and Response Times to Track Skill Acquisition: Model Estimation and Application—✦Shiyu Wang, University of Georgia; Susu Zhang, University of Illinois at Urbana-Champaign; Jeff Douglas, University of Illinois at Urbana-Champaign; Steven Culpepper, University of Illinois at Urbana-Champaign

2:45 p.m. Factor Analysis of Multitype Recurrent Events with Applications to Modern Educational Assessment—✦Yunxiao Chen, Emory University

3:05 p.m. Bayesian Variable Selection for Restricted Latent Class Model with an Application in Cognitive Diagnostic Models—✦Steven Culpepper, University of Illinois at Urbana-Champaign; Feng Liang, University of Illinois at Urbana-Champaign; Yinyin Chen, University of Illinois at Urbana Champaign

3:25 p.m. Identifiability of Restricted Latent Class Models—✦Gongjun Xu, University of Michigan; Yuqi Gu, University of Michigan

3:45 p.m. Floor Discussion

395 CC-West 304/305

■ ● **Statistical Models for High-Dimensional Computer Output—Topic Contributed**

Section on Statistics and the Environment, Section on Statistical Computing

Organizer(s): Stefano Castruccio, University of Notre Dame

Chair(s): Joseph Guinness, NC State University

2:05 p.m. A Stochastic Approach for Downscaling Solar Irradiance Data Products—✦Wenqi Zhang, University of Colorado at Boulder; William Kleiber, University of Colorado

2:25 p.m. Computer Model Calibration of Static Systems Using Sequential Monte Carlo Methods—✦Murali Haran, Penn State University; Ben Seiyon Lee, Penn State University; Klaus Keller, Penn State University

2:45 p.m. Changes in Spatiotemporal Precipitation Patterns in Changing Climate Conditions—✦Won Chang, University of Cincinnati; Michael Stein, University of Chicago, Dept. of Statistics; Jiali Wang, Argonne National Laboratory; V. Rao Kotamarthi, Argonne National Laboratory; Elisabeth J. Moyer, University of Chicago

3:05 p.m. Fusing Multiple Existing Space-Time Land Cover Products—✦Amanda Hering, Baylor University; Nicol·s Rodrìguez-Jeangros, Colorado School of Mines; John McCray, Colorado School of Mines; Timothy Kaiser, Colorado School of Mines

3:25 p.m. Compressing Scientific Data: Reducing Storage While Preserving Information—✦Dorit Hammerling, National Center for Atmospheric Research; Joseph Guinness, NC State University; Allison Baker, National Center for Atmospheric Research

3:45 p.m. Floor Discussion

396 CC-West 117

■ ● **Field to Fork: Leading with Statistics in the Food Industry—Topic Contributed**

Quality and Productivity Section, Section on Physical and Engineering Sciences, Section on Statistical Learning and Data Science

Organizer(s): Shankang Qu, PepsiCo

Chair(s): Richard De Veaux, Williams College

2:05 p.m. Applications of Multivariate Statistical Models in Food Industry—✦Stanislav Zakharkin,

2:25 p.m. Accelerating Product Development with Virtual Experimentation—✦Fred Hulting, General Mills, Inc.

2:45 p.m. Development of a Processed Cheese Food Safety Model Using a Response Surface Design and Parametric Survival Modeling—✦Francis Rossi, PepsiCo

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

3:05 p.m. A Bayesian Hierarchical Model for Integrated Analysis of Consumer Appeal in Affective Testing—✦Jing Cao, ; Janette Pool, PepsiCo

3:25 p.m. Multivariate Analysis of Sensory and Consumer Data—✦Jianfeng Ding, SAS Institute

3:45 p.m. Floor Discussion

397 CC-East 19

■ ● Statistical Learning for Epigenomics Data—Topic Contributed

SSC, Section on Statistics in Genomics and Genetics, Section on Statistical Learning and Data Science

Organizer(s): Michael M. Hoffman, Princess Margaret Cancer Centre/University of Toronto

Chair(s): Pingzhao Hu, University of Manitoba

2:05 p.m. Inference of Transcription Factor Binding Sites in New Cell Types from Open Chromatin and Gene Expression Data—✦Michael M. Hoffman, Princess Margaret Cancer Centre/University of Toronto; Mehran Karimzadeh, University of Toronto

2:25 p.m. Detecting Developmental Expression Switches from Transcriptomic and Epigenomic Data—✦Claudia Kleinman, McGill University; Marie Forest, Lady Davis Research Institute, McGill University; Selin Jessa, McGill University; Celia M.T. Greenwood, Lady Davis Research Institute, McGill University

2:45 p.m. Inferring the Impact of Genetic Variation on Regulatory Networks—✦Sara Mostafavi

3:05 p.m. Understanding Gene Regulation Through Graph-Based Posterior Regularization in Structured Probabilistic Models—✦Maxwell Libbrecht, Simon Fraser University

3:25 p.m. A Smoothed EM-Algorithm for Modeling DNA Methylation Profiles from Bisulfite Sequencing Data—✦Karim Oualkacha, Universite Du Quebec a Montreal; Celia M.T. Greenwood, Lady Davis Research Institute, McGill University; Kaiqiong Zhao, Epidemiology, Biostatistics and Occupational Health, and Human Genetics, McGill University; Lajmi Lakhal-Chaieb, Université Laval

3:45 p.m. Floor Discussion

398 CC-West 205

■ Reproducibility in Imaging Studies—Topic Contributed

Section on Statistics in Imaging

Organizer(s): Dana L Tudorascu, University of Pittsburgh

Chair(s): Rob Krafty, University of Pittsburgh

2:05 p.m. Quantifying the Reliability of Image Replication Studies—✦Ciprian Crainiceanu, Johns Hopkins University

2:25 p.m. Reproducibility in Functional Neuroimaging Studies Through the Lens of Multiplicity—✦Nicole Lazar, University of Georgia

2:45 p.m. Neuroconductor: An R Platform for Medical Imaging Analysis"—✦John Muschelli, Johns Hopkins University

3:05 p.m. Reproducibility of FDG-PET Standardized Uptake Value (SUV) for Use as an Integral Biomarker in Clinical Trials—✦Brenda Kurland, University of Pittsburgh

3:25 p.m. Disc: Dana L Tudorascu, University of Pittsburgh

3:45 p.m. Floor Discussion

399 CC-West 115

■ ● Modern Methods and Applications for HIV/AIDS Research—Topic Contributed

Biometrics Section

Organizer(s): Katie R Mollan, Center for AIDS Research, University of North Carolina at Chapel Hill

Chair(s): Katie R Mollan, Center for AIDS Research, University of North Carolina at Chapel Hill

2:05 p.m. Estimating Partial Correlations Between Logged HIV-RNA Measurements Subject to Detection Limits—✦Robert Lyles, Emory University

2:25 p.m. Measuring Association Between Times from Treatment Initiation to Viral Failure and Regimen Change in HIV-Infected Persons—✦Svetlana K. Eden, Vanderbilt University School of Medicine; Bryan E Shepherd, Vanderbilt University School of Medicine; Chun Li, Case Western Reserve University, Institute for Computational Biology

2:45 p.m. Assessing Individual and Disseminated Causal Package Effects in Network HIV Treatment and Prevention Trials—✦Ashley Buchanan, University of Rhode Island; Donna Spiegelman, Harvard T.H. Chan School of Public Health; Sten Vermund, Yale University; Samuel Friedman, National Development and Research Institutes, Inc.; Judith Lok, Harvard T.H. Chan School of Public Health

3:05 p.m. Statistical Considerations When Working with Mathematical Models—Sarah Holte, Fred Hutchinson Cancer Research Center; ✦Chloe Krakauer, Universiry of Washington

3:25 p.m. Disc: Robert A Parker, Harvard University Center for AIDS Research, Harvard Medical School, Massachusetts General Hospital

3:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

400 CC-West 217

Recent Advances in Bayesian Computation and Modeling of High-Dimensional Multivariate Data—Topic Contributed

Section on Bayesian Statistical Science

Organizer(s): Michael Stanley Smith, University of Melbourne

Chair(s): Stan Altan,

2:05 p.m. Gaussian Variational Approximation for High-Dimensional State Space Models—✦Robert Kohn, Univ of New South Wales; Matias Quiroz , University of New South Wales; David J Nott, National University of Singapore

2:25 p.m. Bayesian Inference of Spreading Processes on Networks—✦Antonietta Mira, Universit‡ della Svizzera italiana; Ritabrata Dutta, Universit‡ della Svizzera italiana; Jukka-Pekka Onnela, Harvard T. H. Chan School of Public Health

2:45 p.m. Implicit Copulas from Bayesian Regularized Regression Smoothers—✦Nadja Klein, University of Melbourne; Michael Stanley Smith, University of Melbourne

3:05 p.m. Variational Bayes Estimation of Time Series Copulas for Multivariate Ordinal and Mixed Data—✦Michael Stanley Smith, University of Melbourne; Ruben Loaiza-Maya, University of Melbourne

3:25 p.m. Efficiently Combining Pseudo Marginal and Particle Gibbs Sampling—✦David Gunawan, University of New South Wales; Christopher Carter, University of New South Wales; Robert Kohn, Univ of New South Wales

3:45 p.m. Floor Discussion

401 CC-West 114

■ ● Lead with Statistics: Case Studies and Methods for Learning and Improving Healthcare Through EHRs—Topic Contributed

Biometrics Section

Organizer(s): Qingxia Chen, Vanderbilt University; Dandan Liu, Vanderbilt University Medical Center

Chair(s): Christopher Lindsell, Vanderbilt University

2:05 p.m. If it Is in the Electronic Health Record, Then it Must Be True—✦Jareen Meinzen-Derr, Cincinnati Children's Hospital Med Center

2:25 p.m. Causal Inference Using EMRs with Missing Data: a Machine Learning Approach with an Application on the Evaluation of Implantable Cardioverter Defibrillators—✦Changyu Shen, Beth Israel Deaconess Medical Center, Harvard Medical School; Xiaochun Li, Indiana University; Zuoyi Zhang, Regenstrief Institute; Alfred E Buxton, Beth Israel Deaconess Medical Center

2:45 p.m. Improving Data Quality for Time-Varying Measurements in EHRs via Dynamic Interaction: a Case Study for Growth Chart—✦Qingxia Chen, Vanderbilt University

3:05 p.m. Recalibrating Prognostic Risk Score Adapted to EHR Data—✦Dandan Liu, Vanderbilt University Medical Center; Hui Nian, Vanderbilt University Medical Center; Qingxia Chen, Vanderbilt University

3:25 p.m. Predicting Suicide Risk: Statistical Methods for Using EHR Data to Inform Mental Health Care—✦Rebecca Coley, Kaiser Permanente Washington Health Research Institute; Susan Shortreed, Kaiser Permanente Washington Health Research Institute; Rod Walker, Kaiser Permanente Washington Health Research Institute; Eric Johnson, Kaiser Permanente Washington Health Research Institute

3:45 p.m. Floor Discussion

402 CC-West 204

■ HPSS Student Paper Competition Winners: Statistics Advancing Policy—Topic Contributed

Health Policy Statistics Section

Organizer(s): Roee Gutman, Brown University

Chair(s): Roee Gutman, Brown University

2:05 p.m. The Role of Body Mass Index at Diagnosis on Black-White Disparities in Colorectal Cancer Survival: a Density Regression Mediation Approach—✦Katrina Devick, Harvard TH Chan School of Public Health; Linda Valeri, McLean Hospital, Harvard Medical School; Jarvis Chen, Harvard TH Chan School of Public Health; Alejandro Jara, Pontificia Universidad Catolica de Chile; Marie-Abele Bind, Harvard University; Brent A. Coull, Harvard TH Chan School of Public Health

2:25 p.m. Bayesian Record Linkage Under Limited Linking Information—✦Mingyang Shan, Brown University; Roee Gutman, Brown University; Kali Thomas, Brown University

2:45 p.m. A Stochastic Second-Order Generalized Estimating Equations Approach for Estimating Association Parameters Under Informative Missingness—✦Tom Chen, ; Eric Tchetgen Tchetgen, Harvard University; Rui Wang, Harvard Pilgrim HealthCare Institute

3:05 p.m. Correcting for Exposure Misclassification in Meta-Analysis: a Bayesian Approach—✦Qinshu Lian, University of Minnesota; James S. Hodges, University of Minnesota; Richard Maclehose, University of Minnesota; Haitao Chu, University of Minnesota Twin Cities

3:25 p.m. A Bayesian Hierarchical Model Estimating CACE in Meta-Analysis of Randomized Clinical Trials with Noncompliance—✦Jincheng Zhou, University of Minnesota; Haitao Chu, University of Minnesota Twin Cities; James S. Hodges, University of Minnesota; M. Fareed†† Khan Suri, University of Minnesota

3:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Topic Contributed Panels 2:00 p.m.—3:50 p.m.

403 CC-West 118

■ ● **The Power of Podcast: Promoting Statistics and Data Science in the Age of Social Media—Topic Contributed**

Section on Statistical Graphics, Biopharmaceutical Section, International Statistical Institute, Professional Issues and Visibility Council, Section on Statistical Computing

Organizer(s): Richard Zink, TARGET PharmaSolutions

Chair(s): Forrest Williamson, Eli Lilly

Panelists: ✦Richard Zink, TARGET PharmaSolutions

✦John Bailer, Miami University

✦Katie Malone, Civis Analytics

✦Kyle Polich, Data Skeptic

3:40 p.m. Floor Discussion

404 CC-West 211

■ **Effectively Explaining Statistical Concepts to Researchers from Other Fields—Topic Contributed**

Section on Statistical Consulting, Section on Statistical Education, Section on Teaching of Statistics in the Health Sciences, Survey Research Methods Section

Organizer(s): Harry Dean Johnson, Washington State University

Chair(s): Harry Dean Johnson, Washington State University

Panelists: ✦Natalie Blades, Brigham Young University

✦Beth Chance, Cal Poly - San Luis Obispo

✦Paul Roback, St Olaf College

✦Heather Smith, Cal Poly

✦Kim Love, K. R. Love Quantitative Consulting and Collaboration

3:40 p.m. Floor Discussion

405 CC-West 215/216

■ ● **Emerging Perspectives on "Customer-Based Corporate Valuation"—Topic Contributed**

Section on Statistics in Marketing

Organizer(s): Daniel McCarthy, Emory University, Goizueta Business School

Chair(s): Seun Odeyemi, Georgia Tech

Panelists: ✦Daniel McCarthy, Emory University, Goizueta Business School

✦Elliot Shin Oblander, University of Pennsylvania

✦Peter Fader, University of Pennsylvania

3:40 p.m. Floor Discussion

406 CC-East 10

● **Research and Career Opportunities in Statistical Auditing—Topic Contributed**

Statistical Auditing Interest Group

Organizer(s): Roger C. Pfaffenberger, Ryan, LLC

Chair(s): Mary Batcher, National Institute of Statistical Sciences

Panelists: ✦Edward Mulrow, NORC, University of Chicago

✦Ed Cohen, Ernst & Young

✦Roger C. Pfaffenberger, Ryan, LLC

✦H. John Hilton, Office of the Auditor General of Canada

3:40 p.m. Floor Discussion

407 CC-West 210

■ **Linked Data Visualizations, Machine Learning and Evidence-Based Policy Making—Topic Contributed**

Social Statistics Section

Organizer(s): Asaph Young Chun, US Census Bureau

Chair(s): Hanzhi Zhou, Mathematica Policy Research

Panelists: ✦Giang Huong Nguyen, University of Iowa

✦Allison Conners, University of Toronto

✦Sophie Lee, ISR Foundation Center for Interdisciplinary Research

✦Nema Dean, University of Glasgow

✦Paul Chun, ISR Foundation Center for Interdisciplinary Research

3:40 p.m. Floor Discussion

Topic Contributed Poster Presentations 2:00 p.m.—3:50 p.m.

408 CC- West Hall B

SPAAC Poster Competition—Topic Contributed

Scientific and Public Affairs Advisory Committee, Survey Research Methods Section

Chair(s): Michael Messner, U.S. Environmental Protection Agency

Scientific and Public Affairs Advisory Committee

1 **Renewable Estimation and Incremental Inference in Generalized Linear Models with Streaming Data Sets**—✦Lan Luo, ; Peter X.-K. Song, University of Michigan

2 **Measuring the Percentage of Smoothness in the Trend of a Univariate Time Series: An Application to a Time Series of Mexico's GDP**—✦Daniela Cortés Toto, Universidad De Las Américas Puebla (UDLAP); VÌctor M. Guerrero, Instituto TecnolÛgico AutÛnomo de

TUESDAY

México (ITAM); Hortensia J. Reyes Cervantes, Benemérita Universidad AutÛnoma de Puebla (BUAP)

3 **The Pythagorean Law of Mutual Information Identity: A New Look at Logistic Regression Parameters**—✦Michelle Liou, Academia Sinica; Jiun-Wei Liou, Academia Sinica; Philip E. Cheng, Academia Sinica

4 **Analysis of Non-Stationary Time Series Using Copula-Based Dependence Measures**—✦Yongxin Zhu, King Abdullah University of Science and Technology; Charles Fontaine, King Abdullah University of Science and Technology; Hernando Ombao, King Abdullah University of Science and Technology

5 **Agreement and Individual Bioequivalence: a New Look**—✦Tie-Hua Ng, FDA/CBER

6 **An Application of SEM to Measure the Effects of Government Programs and Actions on the Reduction of Poverty for the Population of the State of Guanajuato, Mexico**—✦Rafael Perez Abreu,

7 **VIF-BEEF: a Didactic Game to Practice the Assumptions in Linear Regression**—✦Silvia Solera, School of Statistics, University of Costa Rica; Monica Maria Castrillo, UCR

8 **Detective-P: Educational Computer Game for Teaching the Concept of P-Value**—✦Maria Jimena Ruiz Rivera, School of Statistics, University of Costa Rica

9 **Estimation and Inference for Cluster-Randomized Test-Negative Design Trials**—✦Suzanne M. Dufault, University of California, Berkeley; Nicholas P. Jewell, University of California, Berkeley

10 **Analysis Framework in Integrating Data of Different Modalities with Application in Identifying Important Predictors/Subgroups in Non-Alcoholic Steatohepatitis**—✦Tuan Nguyen, Gilead Sciences; Guang Chen, Gilead Sciences; Adarsh Joshi, Gilead Sciences, Inc.; Lulu Wang, Gilead Sciences; Yafeng Zhang, Gilead Sciences; Yuanyuan Xiao, Gilead Sciences; Catherine Jia, Gilead Sciences; Ren Xu, Gilead Sciences; Stephen Djedjos, Gilead Sciences; Rob Myers, Gilead Sciences

11 **Online Local Q-Learning**—✦Lili Wu, NCSU; Eric Laber, North Carlina State University

12 **The Effect of Player Injuries on Major League Baseball Team Performance: a Longitudinal Analysis of the 2014-2017 Regular Seasons**—✦Jay Schaffer, Univ of Northern Colorado; Austin Brown, University of Northern Colorado

13 **Analytic White Matter Tractography and Compositional Distance Based Summarization of White Matter Brain Structures**—✦Wendy Meiring, University of California, Santa Barbara; Matthew Cieslak, UCSB; Tegan Brennan, UCSB; Subhash Suri, UCSB; Scott T. Grafton, UCSB

14 **A Functional Anova Approach to Detecting Changes in Soil Moisture and Temperature**—✦Manju M. Johny, Iowa State University; Petruta C. Caragea , Iowa State University; Diane M. Debinski, Montana State University ; Jill A. Sherwood, Iowa State University

15 A New Estimation Method for CoVaR Based on Three Regime Bivariate Normal Distribution—✦Jieun Choi, Ewha Womans University; Dong Wan Shin, Ewha Womans University

16 **A Comparative Study on Propensity Score Approaches: Michigan Arthroplasty Registry Collaborative Quality Initiative (MARCQI)**—✦Huiyong Thomas Zheng, The University of Michigan, Ann Arbor; Richard Hughes, The University of Michigan, Ann Arbor; Brian Hallstrom, The University of Michigan, Ann Arbor; Paul Charpentier, Virginia Commonwealth University; Ajay Srivastava, OrthoMichigan; Rochelle Igrisan, The University of Michigan, Ann Arbor

Section on Statistics in Imaging

17 **A Trend Surface Modeling Approach to Neuroimaging Data**—✦Divya Brundavanam, University of Udine; Andre F Marquand, Donders Institute for Brain, Cognition and Behaviour, Radboud University; Christian F. Beckmann, Donders Institute for Brain, Cognition and Behaviour, Radboud University

Scientific and Public Affairs Advisory Committee

18 **A 10-DNA Repair Gene Signature Predicts Benefits from Adjuvant Chemotherapy (ACT) in Patients with Non-Small Cell Lung Cancer (NSCLC)**—✦Xiaokui Mo, Ohio State University-College of Medicine; Jianying Zhang, Ohio State University; Meng Xu Welliver, Ohio State University; Soledad Fernandez, The Ohio State University

19 **Predicting Mood Using Multivariate Mobile Sensor Data Streams for Medical Interns**—✦Timothy NeCamp, University of Michigan; Zhenke Wu, University of Michigan; Srijan Sen, University of Michigan; Edward Ionides, University of Michigan

20 **Identifying Morphologies of Precancerous Cells**—✦Theresa Gebert, Carnegie Mellon University

21 **Differences Between Telomerase Activation and ALT Based on the Theory of G-Networks**—✦Kyung Hyun Lee, Rice University; Marek Kimmel, Rice University

22 **Convergence of Known Distributions to Normality or Non-Normality: An Elementary Ratio Technique**—✦Subhash Bagui, University of West Florida; K. L. Mehra, University of Alberta

23 **Predicting Invasive Species Richness with Boosted Regression Trees**—✦Namaluba Malawo, Purdue University; Gabriela Nunez, Purdue University; Songlin Fei, Purdue University

24 **Using Error Statistics to Improve Forecasts**—✦Hope Cullers, Purdue University; Mike Baldwin, Purdue University

25 **A Bayesian Semiparametric Model for Correlated Longitudinal Data: An Application to Studies Involving Patients and Family Members**—✦Li-Jung Liang, UCLA

26 **Bayesian Function Data Analysis for Weather Forecast**—✦Duchwan Ryu, Northern Illinois University; Hao Shen, Northern Illinois University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

27 **Developing a New Mortality Risk Score for Spinal Cord Injury Patients Using Machine Learning**—✦Nader Fallah, Vanessa Noonan, Rick Hansen Institute; Carly Rivers, Rick Hansen Institute; Tova Plashkes, Rick Hansen Institute; Zeina Waheed, Rick Hansen Institute; Mahyar Etminan, UBC; Nancy Thorogood, Rick Hansen Institute; John Street, UBC; Brian Kwon, UBC; Marcel Dvorak, UBC

Contributed Sessions 2:00 p.m.—3:50 p.m.

409 CC-West 111

■ Survival Analysis I—Contributed

Biometrics Section

Chair(s): Yu Du, Johns Hopkins Bloomberg School of Public Health

2:05 p.m. **Choosing the Primary Efficacy Analysis for a Randomized Clinical Trial with Competing Risks**—✦Eric Leifer, National Heart, Lung, and Blood Institute; James Troendle, National Institutes of Health; Lauren Kunz, National Heart, Lung, and Blood Institute

2:20 p.m. **Analysis of Competing Risk Data in Generalized Case-Cohort Design**—✦Yayun Xu, Medical College of Wisconsin; Soyoung Kim, Medical College of Wisconsin

2:35 p.m. **General Regression Model for the Subdistribution of a Competing Risk Under Left-Truncation and Right-Censoring**—✦Anna Bellach, Fred Hutch Cancer Research Center; Michael Kosorok, University of North Carolina at Chapel Hill; Peter Gilbert, Fred Hutchinson Cancer Research Center; Jason P Fine, University of North Carolina at Chapel Hill

2:50 p.m. **A Class of Additive Transformation Models for Recurrent Gap Times**—✦Ling Chen, Washington University in St. Louis; Yanqin Feng, School of Mathematics and Statistics, Wuhan University; (Tony) Jianguo Sun, University of Missouri

3:05 p.m. **Penalized Survival Models for the Analysis of Alternating Recurrent Event Data**—✦Lili Wang, University of Michigan, Ann Arbor; Zhi He, University of Michigan; Douglas E. Schaubel, University of Michigan, Ann Arbor

3:20 p.m. **A General Class of Weighted Semiparametric Models for Recurrent Event Data**—✦Russell Stocker, Indiana University of Pennsylvania; Akim Adekpedjou, Missouri University of Science and Technology

3:35 p.m. **Semiparametric Transformation Probit Models with Current-Status Data**—✦Jing Qin, National Institute of Allergy and Infectious Diseases, NIH; Hao Liu, Indiana University Melvin and Bren Simon Cancer Center

410 CC-West 112

■ High-Dimensional Regression—Contributed

Biometrics Section

Chair(s): Nathan Thomas James, Vanderbilt University

2:05 p.m. **Semiparametric-Sparse Network Kernel Method for Genetic Pathway Analysis**—✦Byung-Jun Kim, Virginia Polytechnic Inst. & State Univ.; Inyoung Kim, Virginia Tech

2:20 p.m. **The Generalized Ridge Estimator of the Inverse Covariance Matrix**—✦Wessel Van Wieringen, VU Medical Center

2:35 p.m. **Constrained Regression via Majorization-Minimization**—✦Jason Xu, UCLA; Kenneth Lange, UCLA

2:50 p.m. **Simulation-Selection-Extrapolation Estimator for High-Dimensional Errors-In-Variables Models**—✦Linh Nghiem, Southern Methodist University; Cornelis Potgieter, Southern Methodist University

3:05 p.m. **Finding Needles in a Hay Stack - an Approach for a Small-Number-Factor High-Dimensional Data**—✦Chi-Hse Teng,

3:20 p.m. **Hyperplane Estimation in High Dimensions**—✦Zhiyuan Lu, University of Michigan

3:35 p.m. **Spatial Factor Models for High-Dimensional and Large Spatial Data: An Application in Forest Variable Mapping**—✦Daniel Taylor Rodriguez, Portland State University; Andrew Oliver Finley, Michigan State University; Abhi Datta, Johns Hopkins Bloomberg School of Public Health; Chad Babcock, University of Washington; Hans-Erik Andersen, USDA Forest Service; Bruce Douglas Cook, NASA Goddard Space Flight Center; Douglas C Morton, NASA Goddard Space Flight Center; Sudipto Banerjee, UCLA School of Public Health

411 CC-West 116

Copula Model and Maximum Likelihood Estimation—Contributed

Business and Economic Statistics Section

Chair(s): Taps Maiti, Michigan State University

2:05 p.m. **Pearson's or Spearman's: An Appraisal?**—✦Leo Upchurch, Fan Wu, College of Business and Information Science, Tusekgee University; Territa L Upchurch-Poole, Juniata College

2:20 p.m. **Copula Information Criterion for Two-Stage Maximum Likelihood**—✦Vinnie Ko, University of Oslo; Nils Lid Hjort, University of Oslo

2:35 p.m. **Modeling Count Data via Copulas: Comparison of Kendall's Tau and Spearman's Rho**—✦Hadi Safari Katesari, Southern Illinois ?University, Carbondale; Samira Zaroudi, Science and Research Branch, Islamic Azad University; Reza Safari Katesari, Payame Noor University; S. Yaser Samadi, Southern Illinois University

2:50 p.m. Heterogeneous Tail Generalized COMFORT Modeling via Cholesky Decomposition—✦Pawel Polak, Columbia University

3:05 p.m. Multi-Level Time Series Clustering for Asset Selection in Allocation Problems—✦Michael Kotarinos, ; Christos Tsokos, University of South Florida; Kin Doo Young, Arkansas State University

3:20 p.m. Asymptotic Theory of Maximum Likelihood Estimator for Jump-Diffusion Model—✦Yongxin Ye, Peking University

3:35 p.m. Modification of the Black-Scholes Equation with Heavy-Tailed Distributions and Its Application to Financial Derivatives—✦Xing Yang, ; Saadat Faizi , Jackson State University

412 CC-West 219

Theory and Methods for Change-Point and Abnormality Detection—Contributed

IMS

Chair(s): Mengjie Chen, University of Chicago

2:05 p.m. Change-Detection-Assisted Multiple Testing for Spatiotemporal Data—✦Lilun Du, HKUST; Yunlong Wang, Nankai University; Changliang Zou, Nankai University; Zhaojun Wang, Nankai University

2:20 p.m. Finite Sample Change Point Inference and Identification for Hig-Dimensional Mean Vectors—✦Mengjia Yu, University of Illinois at Urbana-Champaign; Xiaohui Chen, University of Illinois at Urbana-Champaign

2:35 p.m. Detecting Multiple Generalised Change-Points by Isolating Single Ones—✦Andreas Anastasiou, London School of Econ. and Pol. Science; Piotr Fryzlewicz, London School of Economics

2:50 p.m. Change-Point Estimation of Trend in High-Dimensional Time Series—✦Monika Bhattacharjee , University of Florida; Moulinath Banerjee, University of Michigan; George Michailidis, University of Florida

3:05 p.m. Outlier Detection in Non-Stationary Data Streams—✦Priyanga Dilini Talagala, Monash University, Australia; Rob J Hyndman, Monash University; Kate Smith-Miles, University of Melbourne, Australia

3:20 p.m. Change-Point Analysis Using Logarithmic Quantile Estimation—✦Lucia Tabacu, Old Dominion University; Mark Ledbetter, Old Dominion University

3:35 p.m. Post-Selection Inference for Changepoint Problems—✦Sangwon Hyun, Carnegie Mellon University; Kevin Lin, Carnegie Mellon University; Max G'Sell, Carnegie Mellon University; Ryan Tibshirani, Carnegie Mellon University

413 CC-East 14

Section on Statistics in Sports Cpapers—Contributed

Section on Statistics in Sports

Chair(s): Andrew Swift, University of Nebraska at Omaha

2:05 p.m. From Markov Models to Poisson Point Processes: Modeling Player Movement in the NBA—✦Jacob Mortensen, Simon Fraser University; Luke Bornn, Sacramento Kings and Simon Fraser University

2:20 p.m. Predicting the PITCHf/X Pitch Classifier—✦Christian Stratton, Montana State University; Andrew Hoegh, Montana State University; Jennifer L Green, Montana State University

2:35 p.m. The Causal Effect of a Catch and Shoot in the NBA—✦Katherine Louise Evans, Verily Life Sciences

2:50 p.m. Removing Absorbing States from Markov Chain Models—✦Li-Hsuan Huang, ; Harish S. Bhat, University of California, Merced; Sebastian Rodriguez, Northwestern University

3:05 p.m. Recreating Plays - Testing Shot Policies in Basketball Using Non-Stationary Markov Decision Processes—✦Nathan Sandholtz, Simon Fraser University; Luke Bornn, Sacramento Kings and Simon Fraser University

3:20 p.m. Linking Whole Body Sweat Measurements with Regional Body Sweat Measurements Using Multivariate Mapping Techniques—✦Peter John De Chavez, PepsiCo; Kelly Barnes, Gatorade Sports Science Institute, PepsiCo; Lindsay Baker, Gatorade Sports Science Institute, PepsiCo; Jason Parcon, PepsiCo

3:35 p.m. Floor Discussion

414 CC-East 16

Advances in Estimation Methods—Contributed

SSC

Chair(s): Sahir Rai Bhatnagar, McGill University

2:05 p.m. Optimal Regression Designs Under the Second-Order Least Squares Estimator—✦Julie Zhou, University of Victoria; Chi-Kuang Yeh, University of Victoria

2:20 p.m. Modeling Changes in the Age Distribution of Opioid Mortality—✦Patrick E Brown, University of Toronto; Ye Lennon Li, Public Health Ontario

2:35 p.m. Inference on the Treatment Effect in Non-Randomized Pretest-Posttest Studies with Missing Data: An Empirical Likelihood Approach—✦Shixiao Zhang, University of Waterloo; Peisong Han, University of Michigan; Changbao Wu, University of Waterloo

2:50 p.m. A G-Formula Estimator for Performing Causal Mediation Analysis with Survival Outcomes: Investigating the Relationship Between Statins, Cholesterol and Cardiovascular Diseases—✦Denis Talbot, Universite

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Laval; Joseph A Delaney, University of Washington School of Public Health; Veit Sandfort, National Institutes of Health; David M Herrington, Heart and Vascular Center of Excellence; Robyn L McClelland, University of Washington School of Public Health

3:05 p.m. Doubly Robust Estimation and Causal Inference for Recurrent Event Data—✦Chien-Lin Mark Su, McGill University; Russell Steele, McGill University; Ian Shrier, McGill University

3:20 p.m. Incorporating Auxiliary Information by Joint Modeling of Pseudo Data and Length Biased Data—✦Yidan Shi, University of Waterloo; Leilei Zeng, University of Waterloo; Mary E. Thompson, University of Waterloo; Suzanne Tyas, University of Waterloo

3:35 p.m. A Generalization of the Horvitz-Thompson Estimator—✦Alain Theberge

415 CC-East 9

Modeling in Transportation Safety Issues—Contributed

Transportation Statistics Interest Group

Chair(s): Fan Li, Duke University

2:05 p.m. Bayesian Analysis of Multivariate Crash Counts Using Copulas—✦Eun Sug Park, Texas A&M Transportation Institute; Man-Suk Oh, Ewha Womans University; Rosy Oh, Ewha Womans University; Jae Youn Ahn, Ewha Womans University

2:20 p.m. Helicopter Safety Assessment in the Gulf of Mexico—✦Nastaran Coleman, Federal Aviation Administration

2:35 p.m. Decision-Adjusted Predictive Modeling Approach for Driver Risk Assessment—✦Huiying Mao, Virginia Tech / VTTI; Feng Guo, Virginia Tech; Xinwei Deng, Virginia Tech

2:50 p.m. Causal Inference for the Risk of Cellphone Use While Driving—✦Danni Lu, Virginia Tech; Feng Guo, Virginia Tech; Fan Li, Duke University

3:05 p.m. Reducing Accelerometer Data in Instrumented Vehicles—✦Michael Owen Bishop, University of Iowa College of Public Health; Jeffrey D Dawson, University of Iowa College of Public Health; Jennifer Merickel, University of Nebraska Medical Center; Matthew Rizzo, University of Nebraska Medical Center

3:20 p.m. Prescription Medications and Traffic Fatalities in Older Drivers: The Influence of Vehicle Characteristics, Driving Conditions and Roadway Geometry—✦Michael Singleton, University of Kentucky; Larry Cook, University of Utah

3:35 p.m. Data Collection Issues in Modeling and Estimation of Urban Transportation Networks—✦Isabelle Kemajou-Brown, Morgan State University; Jasmine Alston, Morgan State University; Paul Bikoi, Morgan State University; Eugene Evans, Morgan State University; Xilei Zhao, University of Michigan; James C. Spall, Applied Physics Laboratory

416 CC-West 121

● Clinical Trial Design- 4—Contributed

Biopharmaceutical Section

Chair(s): Lanju Zhang

2:05 p.m. A Bayesian Framework for Calculating Predictive Probability of Success in Biomarker Development—✦Cong Li, ; Ling Wang, Takeda; Ray Liu, Takeda Pharmaceuticals Inc

2:20 p.m. Dose Finding Model Selection in Oncology Combination Therapy—✦Lixia Pei, Janssen Pharmaceuticals ; Yichen Guo, Harvard University; Kevin Liu, Janssen Pharmaceuticals

2:35 p.m. Testing Strategy in Phase 3 Trials with Multiple Doses—✦David Li, Pfizer; Simon Kirby, Pfizer

2:50 p.m. ESTIMATION of SD for a LOG-TRANSFORMED VARIABLE BASED on SUMMARY STATISTICS in the ORIGINAL SCALE—✦Hui Quan, Sanofi; Juan Zhang, Sanofi; Deborah Dukovic, Sanofi; Dongli Zhou, Merck Senoro

3:05 p.m. Analysis of Stratified Clinical Trials with Time-To-Event Endpoints—✦Devan V Mehrotra, Merck & Co., Inc.; Shanjun Helian, Merck & Co., Inc.; Shu-Chih Su, Merck Research Labs

3:20 p.m. New Multiple Hypotheses Testing Procedures Based on Covering Principle—✦Hong Zhou, Arkansas State University; Huajiang Li, Avanir Pharmaceuticals

3:35 p.m. Improving the Standards for Reporting of Clinical Trial Data—✦Jitendra Ganju, Consultant

417 CC-West 208

■ ● Redesigning Federal Surveys—Contributed

Government Statistics Section, International Statistical Institute, Social Statistics Section

Chair(s): Michael Davern, NORC

2:05 p.m. Calling All Stakeholders: Developing a Demographic Statistical Redesign Research Agenda—✦Richard Levy, U.S. Census Bureau; Jimmie B Scott, U.S. Census Bureau

2:20 p.m. An Overview of 2020 Census Design—✦Robin A Pennington, US Census Bureau; Gina Walejko, U.S. Census Bureau

2:35 p.m. A Statistical Comparison of Call Volume Uniformity Due to Mailing Strategy—✦Andrew Raim, U.S. Census Bureau; Elizabeth Nichols, U.S. Census Bureau; Thomas Mathew, University of Maryland, Baltimore County

2:50 p.m. Results from a Test of Online Modes for the Consumer Expenditure Diary Survey—✦Ian Elkin, Bureau of Labor Statistics; Douglas Williams, Westat; Hanyu Sun, Westat

3:05 p.m. Developing and Testing the Business Research Survey—✦Sharon S Stang, US Bureau of Labor Statitsics; Emily Thomas, US Bureau of Labor Statistics

3:20 p.m. Application of State Health Rankings in the Design of a National Health Survey Sample—✦Jay Clark, Westat; Leyla Mohadjer, Westat; Te-Ching Chen, National Center for Health Statistics

3:35 p.m. Leading with Local: The Role of Regional Official Statistics—✦Roeland Beerten, Statistics Flanders

418 CC-East 17

■ From Survival Analysis to Survey Research—Contributed

International Chinese Statistical Association, Survey Research Methods Section

Chair(s): Suhwon Lee, Univ of Missouri

2:05 p.m. Pseudo-Kernel Method in Accessing Cross-Validated Risk—✦Qing Wang, Wellesley College

2:20 p.m. Boolean Function Networks—✦Henry Lu, National Chiao Tung University

2:35 p.m. Interval Estimation for the Slope Difference in a Normal Mixture Regression Model—✦Shin-Fu Tsai, National Taiwan University

2:50 p.m. A Nonlinear Model for Censored and Mis-Measured Time-Varying Covariates in Survival Models, with Applications in HIV/AIDS Studies—✦Hongbin Zhang, City University of New York, School of Public Health; Lang Wu, University of British Columbia

3:05 p.m. Estimating Treatment Effects for Semicompeting Risks Data with Treatment Switching—✦Chia-Hui Huang, National Taipei University

3:20 p.m. What's Missing? Analysis of NCVS Missed Crimes Results 2012 to 2017—✦Alan Peterson, U.S. Census Bureau

3:35 p.m. Analysis of Influences Related to Interviewer Non-Compliance with Established Procedures for SIPP—✦Danquan Prunty, U.S. Census Bureau; Alpha Savage, US Census Bureau

419 CC-West 214

Bayesian Computation and Spatial Modeling—Contributed

Section on Bayesian Statistical Science, Survey Research Methods Section

Chair(s): Geng Chen, GlaxoSmithKline

2:05 p.m. Bayesian Dimension and Variable Selection for Model-Based Clustering—✦Love Tanzy, University of Rochester Medical Center; Kyra Singh, Google, Inc.

2:20 p.m. Bayesian Spatial Clustering with Particle Optimization—✦Sameer Deshpande, University of Pennsylvania, Wharton Statistics; Cecilia Balocchi, University of Pennsylvania, Wharton Statistics; Shane Jensen, The Wharton School, University of Pennsylvania; Edward George, Wharton, University of Pennsylvania

2:35 p.m. A New Diagnostic for MCMC Output Analysis—✦Nathan Lane Robertson, University of California, Riverside; James Flegal, University of California, Riverside

2:50 p.m. Fully Bayesian Analysis of Hierarchical Count Regression Models—✦Jarad Niemi, Iowa State University; William Landau, Eli Lilly and Company; Dan Nettleton, Iowa State University

3:05 p.m. Mapping Geographic Variations in Teen Birth Rates in Small Areas—✦Diba Khan, CDC; Brady Hamilton, CDC/NCHS; Yulei He, CDC/NCHS

3:20 p.m. Bayesian Small Area Estimation of Multinomial Outcomes—✦David R Judkins, Abt Associates; Stas Kolenikov, Abt Associates; Raphael Nishimura, Abt Associates

3:35 p.m. Hierarchical Gaussian Processes for Spatially Dependent Model Selection—✦James Fry, Virginia Tech; Scotland Leman, Virginia Tech

420 CC-West 202

■ Biomarker Evaluation—Contributed

Section on Medical Devices and Diagnostics

Chair(s): Lili Tian, SUNY at Buffalo

2:05 p.m. New Method of Evaluation of Limit of Detection (LoD) in Molecular Diagnostics—✦Jeffrey Vaks, Roche Molecular Diagnostics

2:20 p.m. Estimating the Receiver Operating Characteristic Curve from Clustered Data and Case-Control Studies—✦Yalda Zarnegarnia, University of Miami; Shari Messinger, University of Miami

2:35 p.m. A Comprehensive/Comparative Review of Cut-Point Selection Methods for Multiple Class Settings—✦Jia Hua, State University of New York At Buffalo; Lili Tian, SUNY at Buffalo

2:50 p.m. Dynamic Prediction for Patients with High-Grade Extremity Soft Tissue Sarcoma—✦Anja Rueten-Budde, Leiden University; Marta Fiocco, Leiden University

3:05 p.m. Evaluation of Therapeutic Effect in Clinical Study Using Companion Diagnostic Device for Patient Screening—✦Jeng Mah, Beckman Coulter

3:20 p.m. Confidence†intervals†to†compare†optimal†performance†in†multi-State†diagnostic†tests†with†correlated Biomarkers†—✦Beau Nunnally, Air Force Institute of Technology; Christine M Schubert, Air Force Institute of Technology; Katherine A Batterton, Air Force Institute of Technology

3:35 p.m. Inference for Youden's Index with Varying Prevalence—✦Christine Schubert Kabban, Air Force Institute of Technology; Katherine A Batterton, Air Force Institute of Technology; Richard Warr, Brigham Young University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

421 CC-West 218

Advances in Bayesian Modeling and Inferential Methods—Contributed

International Society for Bayesian Analysis (ISBA), SSC

Chair(s): Xinyi Xu, The Ohio State University

2:05 p.m. Hierarchical Bayesian Analysis for Stochastic Frontier Production Function Model—✦Seongho Song, University of Cincinnati; Younshik Chung, Pusan National University; David Taesok Yi, Xavier University

2:20 p.m. Bayesian Nonparametric Models for Multivariate Processes in Phylodynamics Using Stochastic Differential Equations—✦James Faulkner, University of Washington; Vladimir N. Minin, University of California, Irvine

2:35 p.m. Bayesian Network Modeling for Family-Based Genetic Association Study—✦Peijie Xie, University of Victoria; Xuekui Zhang, University of Victoria; Li Xing, University of Victoria

2:50 p.m. Bayesian Generalized Smoothing Spline ANOVA with Dimension Reduction—✦Chin-I Cheng, Central Michigan University; Paul Speckman, University of Missouri-Columbia

3:05 p.m. Complexity Results for MCMC Derived from Quantitative Bounds—✦Jun Yang, University of Toronto; Jeffrey S Rosenthal, University of Toronto

3:20 p.m. Floor Discussion

TUESDAY

422 CC-West 223

Statistical Learning for Functional Data—Contributed

Section on Statistical Learning and Data Science

Chair(s): Tianhong He, Google

2:05 p.m. Probabilistic K-Mean with Local Alignment for Functional Motif Discovery—✦Marzia A Cremona, The Pennsylvania State University; Francesca Chiaromonte, The Pennsylvania State University

2:20 p.m. Multivariate Calibration with Robust Signal Regression—✦Bin Li, Louisiana State University ; Brian D. Marx, Louisiana State University; David C Weindorf, Texas Tech University; Somsubhra Chakraborty, Indian Institute of Technology Kharagpur

2:35 p.m. Statistical Methods for Wearable Device Data with an Application in Clinical Studies—✦Xinyue Li, Yale University; Hongyu Zhao, Yale; Michael John Kane, Yale University; Yunting Zhang, Shanghai Children's Medical Center; Fan Jiang, Shanghai Children's Medical Center; Qingmin Lin, Shanghai Children's Medical Center; Qi Zhu, Shanghai Children's Medical Center; Yuanjin Song, Shanghai Children's Medical Center

2:50 p.m. FUNCTIONAL AUTOREGRESSIVE MODEL with SIGNAL COMPRESSION—✦Husneara Rahman, Georgia State University; Xin Qi, Georgia State University

3:05 p.m. Quantifying Genetic Influences on Physical Activity Among Twins Based on Minute-Level Accelerometry Data Among Twins—✦Haochang Shou, University of Pennsylvania; Joanne Carpenter, University of Sydney; Kathleen Merikangas, National Institute of Mental Health; Ian Hickie, University of Sydney

3:20 p.m. Regression Based Circular Error Probable: An Application to Ballistic Systems—✦Zachary Zimmer, ; Casey Turner, ATEC

3:35 p.m. Floor Discussion

423 CC-West 221

Recent Advancements in the Analysis of Extremes—Contributed

Section on Statistics and the Environment

Chair(s): Matthew Heaton, Brigham Young University

2:05 p.m. Improved Return Level Estimation via a Weighted Likelihood Latent Spatial Extremes Model—✦Joshua Hewitt, Colorado State University; Miranda Fix, Colorado State University; Jennifer A Hoeting, Colorado State University

2:20 p.m. A Max-Infinitely Divisible Process for Sub-Asymptotic Modeling of Spatial Extremes—✦Gregory Bopp, Pennsylvania State University; Benjamin Shaby, Penn State University; RaphaÎl Huser, KAUST

2:35 p.m. Extreme Wind Speed Forecasting Using INLA—✦Daniela Castro, King Abdullah University of Science and Technology; RaphaÎl Huser, KAUST

2:50 p.m. Probabilistic Prediction of the State of Discarded Underwater Marine Munitions—✦Jonathan Gillmore Ligo, Johns Hopkins Applied Physics Laboratory; Sarah Rennie, Johns Hopkins Applied Physics Laboratory; Alan Brandt, Johns Hopkins Applied Physics Laboratory

3:05 p.m. Spatial Semiparametric Spectral Density Estimation for Multivariate Extremes—✦Mauricio Nascimento, Pennsylvania State University; Benjamin Shaby, Penn State University

3:20 p.m. Scale Mixture for Extremal Dependence Model—✦Likun Zhang, Penn State University; Benjamin Shaby, Penn State University

3:35 p.m. Statistical Identification of Climate Hotspots—✦Joshua French, University of Colorado Denver

Contributed Poster Presentations 2:00 p.m.—3:50 p.m.

424 CC- West Hall B

Contributed Poster Presentations: Social Statistics Section—Contributed

Social Statistics Section

Chair(s): Paul McNicholas, McMaster University

Social Statistics Section

28 **Projecting Age-Specific Death Probabilities at Advanced Ages Using the Mortality Laws of Gompertz and Wittstein**—✦Peter Pflaumer,

29 **Bayesian Extended Redundancy Analysis with Spike-And-Slab Variable Selection for Binary Responses**—✦Min Jung Kyung, Duksung Women's University; Ju-Hyun Park, Dongguk University; Ji Yeh Choi, National University of Singapore

30 **Analyzing the Evolution of Media Narratives Following Mass Shooting Events Using Modern Bayesian Statistical Methods**—✦Thomas Belin, UCLA; Jay Xu

425 CC- West Hall B

Contributed Poster Presentations: Survey Research Methods Section—Contributed

Survey Research Methods Section

Chair(s): Paul McNicholas, McMaster University

Survey Research Methods Section

31 **Understanding Rerandomization Through Simulation**—✦Crystal Shaw, UCLA; Thomas Belin, UCLA

32 **Research on Combination of Probability and Nonprobability Samples**—✦Michael Yang, NORC; Edward Mulrow, NORC at the University of Chicago; Nada Ganesh, NORC at the University of Chicago; Vickie Pineau, NORC at the University of Chicago

33 **Small Scale Analysis with Big Data - Enriching the Panel Study**—✦Jonas Beste, Institute for Employment Research

34 **Examining the Agreement Between Parent and Provider Report of Child Influenza Vaccination Status on the National Immunization Survey-Flu, 2015-16 Influenza Season**—✦Tammy A. Santibanez, CDC; James Singleton , CDC; Yusheng Zhai, CDC; Katherine E. Kahn, CDC

35 **Who Provides the Best Data: Respondent Characteristics, Financial Literacy, and Data Quality in the Survey of Consumer Finances**—✦Richard Windle, Federal Reserve Board; Joanne Hsu, Federal Reserve Board

36 **Propensity Score Analysis Using National Health and Nutrition Examination Survey**—✦Maya Sternberg, Centers for Disease Control & Prevention; Helen Bisrat, Georgia State University; Alula Hadgu, Morehouse School of Medicine

37 **Competing Imputation Approaches Under Simulated Nonignorable Missingness for Perpetrator Characteristics in the FBI's Supplementary Homicide Reports**—✦George Couzens, RTI International; Marcus Berzofsky, RTI International

426 CC- West Hall B

Contributed Poster Presentations:Business and Economic Statistics Section—Contributed

Business and Economic Statistics Section

Chair(s): Paul McNicholas, McMaster University

Business and Economic Statistics Section

38 **Statistical Significance vs. Practical Significance: an Analysis of Statistical Reporting**—✦Julia Vasile, Stony Brook University

39 **Has the Day of the Week Effect on Volatility Structure of the SandP 500 and Its Sectors Changed Over the 2007-2009 Recession?**—✦Marcel Trick, V A Samaranayake, Missouri S&T

40 **Automated Trading and Market Liquidity**—✦Neda Arzandeh, University of Manitoba; Julieta Frank, University of Manitoba

41 **Longterm forecasting under limited data**—✦Lijuan Xu, Google

42 **Modelling the autoregressive behavior of the European electricity day-ahead markets**—✦Rune Hjorth Nielsen, Aalborg University; Ines Wilms, KU Leuven; David Matteson, Cornell University

427 CC- West Hall B

Contributed Poster Presentations:Government Statistics Section—Contributed

Government Statistics Section

Chair(s): Paul McNicholas, McMaster University

Government Statistics Section

43 **Latent Class Analysis with a Calibrated Conditional Independence Assumption**—✦Joseph Kang, Centers for Disease Control & Prevention; Tandin Dorji, Oak Ridge Institute for Science and Education (ORISE)

44 **Time Series Reconciliation Through Flexible Least Squares Estimation**—✦Luis Frank, University of Buenos Aires

45 **The Effect of Facility Characteristics on VA ICU Patient Outcomes**—✦Amy May Johnson O'Shea, Iowa City VA Health Care System & University of Iowa College of Medicine, Iowa City IA; Spyridon Fortis, Iowa City VA Health Care System & University of Iowa College of Medicine, Iowa City IA; Mary Vaughan Sarrazin, Iowa City VA Health Care System & University of Iowa College of Medicine, Iowa City IA; Jane Moeckli, Iowa City VA Health Care System, Iowa City IA; Heather Schacht Reisinger, Iowa City VA Health Care System & University of Iowa College of Medicine, Iowa City IA

46 **New Proposal for Equivalence Criteria in Bioequivalence Study with Binary Clinical Endpoint**—✦Mengdie Yuan, Food and Drug Administration; Jingyu Luan, Food and Drug Administration

47 **Sample and Respondent Provided County Comparisons Among Cellular Respondents from the Behavioral Risk Factor Surveillance System**—✦Machell Town, Centers for Disease Control & Prevention; Carol Pierannunzi, Centers for Disease Control and Prevention; Ashley Hyon, Marketing Systems Group; David Malarek, Marketing Systems Group; Jeffrey S. Bareham, Marketing Systems Group; Kelly Lin, Marketing Systems Group

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

48 **Evaluation of Allocation Strategies for Stratified Sampling Designs**—✦Karin Kraft, Statistics Sweden; Ann-Marie Flygare, ÷rebro university

49 **Propensity Score Matching in an Evaluation of a Federal Scholarship for Service (SFS) Program**—✦Hannah Acheson-Field, IDA Science and Technology Policy Institute (STPI); Asha Balakrishnan, IDA Science and Technology Policy Institute (STPI); Justin Mary, IDA Science and Technology Policy Institute (STPI); Claire Summers, IDA Science and Technology Policy Institute

50 **Consistency of Spectral Clustering in fMRI data**—✦Jessie Moon, FDA

Business and Economic Statistics Section

51 **Multivariate Analysis of Digital Skills Impact on the Online Purchases in Selected Western Balkans EU Candidates**—✦Ksenija Dumicic, Faculty of Economics and Business, University of Zagreb, Croatia

Government Statistics Section

52 **Bayesian Estimation with Shrinking Both Means and Variances in Heteroscedastic Nested Error Regression Models**—✦Hiromasa Tamae,

53 **An Exploration of Potential Solutions to Gerrymandering**—✦Lisa Kay, Eastern Kentucky University; Shane P. Redmond, Eastern Kentucky University

54 **How Do We Choose Addresses to Receive a Choice in Response Mode in the First Mailing of the American Community Survey?**—✦Lindsay Longsine, U.S. Census Bureau; Michael Risley, U.S. Census Bureau

TUESDAY

428 CC- West Hall B

Contributed Poster Presentations: Health Policy Statistics Section—Contributed

Health Policy Statistics Section

Chair(s): Paul McNicholas, McMaster University

Health Policy Statistics Section

55 **Effect of State-Level Policies That Ban Health Insurance Discrimination on the Basis of Gender Identity**—✦Alex McDowell, Harvard Medical School / Cambridge Health Alliance; Adrianna McIntyre, Harvard University; Sherri Rose, Harvard Medical School

56 **Optimal Sample Size for Cluster Randomized Trials: a Simulation-Based Search Algorithm**—✦Ruoshui Zhai, Brown University; Roee Gutman, Brown University

57 **Index of Local Sensitivity to Non-Ignorability for Longitudinal Data with Non-Monotone Missingness**—✦Chengbo Yuan, University of Illinois at Chicago; Donald Hedeker, University of Chicago; Robin Mermelstein, University of Illinois at Chicago; Hui Xie, SPH,University of Illinois at Chicago and Faculty of Simon Fraser University

58 **Analyzing the Effect of the Great Recession (2007-2009) on Changes in Health**—✦Luke Francisco, ; Elliot Friedman, Purdue University; Ryan Murphy, Purdue University; Lei Nie, Purdue University

59 **Modeling Approaches for Comparing Trends in HIV Testing in Two National Health Surveys**—✦Christopher Johnson, CDC/NCHHSTP; Deesha Patel, Centers for Disease Control and Prevention; Amy L. Krueger, Centers for Disease Control and Prevention; Barbara J. Maciak, Centers for Disease Control and Prevention

60 **Mortality Disparity Analytics in Rural Health: a Trend and Graphical Analysis**—✦Erin Tanenbaum, NORC at the University of Chicago; Alana Knudson, NORC Walsh Center for Rural Health Analysis; Devi Chelluri, NORC at the University of Chicago; Michael Meit, NORC Walsh Center for Rural Health Analysis

61 **Using a Blinded and Randomized Controlled Study to Assess the Efficacy of a New Food Safety Program**—✦Adrianna Frey, USDA/Food Safety & Inspection; Sarah McMillan, Food Safety and Inspection Service / USDA

429 CC- West Hall B

Contributed Poster Presentations: Quality and Productivity Section—Contributed

Quality and Productivity Section

Chair(s): Paul McNicholas, McMaster University

Quality and Productivity Section

62 **Warranty/Performance Text Exploration for Modern Reliability**—✦Scott Wise, JMP (A Division of SAS, Inc)

63 **A Bayesian Quality Control Technique for the Joint Monitoring of the Parameters of the Shifted Exponential Distribution**—Austin Brown, University of Northern Colorado; Bryce Whitehead, University of Northern Colorado; ✦Hend Aljobaily, University of Northern Colorado

64 **Analysis of a Process Control Model Subject to Errors in Classification**—✦William Griffith, University of Kentucky; Michelle L. Smith, Eastern Kentucky University

65 **Locally D-Optimal Designs for Logistic Models with Multiple Covariates**—✦Zhongshen Wang, Arizona State University; John Stufken, Arizona State University

66 **General Linear Mixed Logit and Probit Models to US Army and Navy Data**—✦Chuwen Li, University of Minnesota at Morris; Jong-Min Kim, Uniersity of Minnesota at Morris; Il Do Ha, Pukyong National University

67 **Statisticians' Leading Role in Data Quality**—✦Anne-Sophie Julien, Research Centre of the CHU de Québec - Université Laval; LaÎtitia Michou, CHU de Québec - Université Laval; Louis Bessette, CHU de Québec - Université Laval, Paul R Fortin, CHU de Québec - Université Laval

68 **Rational Statistical Analysis Practice in Dissolution Profile Comparison for Product Quality Assessment of Similarity Through Real Case Studies**—✦Mark Johnson, AbbVie Inc.; Yanbing Zheng, AbbVie; Jian-Hwa Han, AbbVie Inc.; James Reynolds, AbbVie Inc.; Karin Rosenblatt, AbbVie Inc.; Tzuchi Ju, AbbVie Inc.; Yi Gao, AbbVie Inc.; Bei Chen, AbbVie Inc.; Ying Zhu, AbbVie Inc.

430 CC- West Hall B

Contributed Poster Presentations: Section on Statistical Consulting—Contributed

Section on Statistical Consulting

Chair(s): Paul McNicholas, McMaster University

Section on Statistical Consulting

69 **Perspectives from a Recent Graduate on Consulting in an Academic Medical Setting**—✦Iram Usman, University of Alberta; Dr. Rhonda J. Rosychuk, University of Alberta

70 **Transforming Data: a Case Study Using C-Peptide Data from Type 1 Diabetes Clinical Trials**—✦Lia Weiner, Rho; Lynette Keyes-Elstein, Rho; Karen Boyle, Rho

71 **Using Actor-Partner Interdependence Model (APIM) to Analyze Patient-Sibling Paired Data**—✦Ke Yan, Medical College of Wisconsin; Liyun Zhang, Medical College of Wisconsin; Craig Erker, Cincinnati Children's Hospital Medical Center; Julie Panepinto, Medical College of Wisconsin; Pippa Simpson, Medical College of Wisconsin

72 **Process-Driven Metrics for Linking Complex Interventions to Outcomes**—✦Evidence Matangi, Purdue University; George P. McCabe, Purdue University ; Tshilidzi Madzivhandila, FANRPAN; Farai Gwelo, FANRPAN; Bertha Mukandawire Munthali, FANRPAN; Simbarashe Sibanda, FANRPAN; Wafaie Fawzi, Harvard University; Nilupa Gunaratna, Purdue University

73 **Development and Comparison of Predictive Models for Woody Breast in Commercial Broilers**—✦Andy Mauromoustakos, Univ. of Arkansas; JUAN P CALDAS-CUEVA, University of Arkansas; CASEY OWENS-HANNING, University of Arkansas

74 **Comparison of Latent Variable Models with Black Box Methods to Classify Disease Flare**—✦Jonathan Grotts,

431 CC- West Hall B

Contributed Poster Presentations: Transportation Statistics Interest Group—Contributed

Transportation Statistics Interest Group

Chair(s): Paul McNicholas, McMaster University

Transportation Statistics Interest Group

75 Analysis of Crashes at Intersections Involving Pedestrians and Bicyclists—✦Peter Hovey, University of Dayton; Deogratias W. Eustace, University Of Dayton; Abdulaziz W. Alshehri, University Of Dayton

432 CC- West Hall B

Contributed Poster Presentations: Section on Statistics in Marketing—Contributed

Section on Statistics in Marketing

Chair(s): Paul McNicholas, McMaster University

Section on Statistics in Marketing

76 **Brand Lift Measurement of Digital Ads**—✦Rachel Fan, Google; Ying Liu, Google; Lu Zhang, Google; Tim Hesterberg, Google; Mike Wurm, Google

77 **Hollywood Movie Data Analysis by Social Network Analysis and Text Mining**—✦Xingyao Xiao,

78 **Symmetric and Predictive Contexts for Statistical Agreement**—✦Shyue-Ming Loh, Google Inc.; Tim Hesterberg, Google

79 **An Application of Stagewise Estimation to Monitor Latent Class Changes Over Survey Periods**—✦Kei Miyazaki, Kansai University; Takahiro Hoshino, Keio University; Ulf Bockenholt, Northwestern University

433 CC- West Hall B

SPEED: Applications of Advanced Statistical Techniques in Complex Survey Data Analysis: Small Area Estimation, Propensity Scores, Multilevel Models, and More—Contributed

Survey Research Methods Section

Chair(s): Paul McNicholas, McMaster University

Survey Research Methods Section

1 **Prisoners Are People Too: Statistical Disclosure Control in the 2016 Survey of Prison Inmates**—✦Nicole Mack, RTI International; Marcus Berzofsky, RTI International; Stephanie Zimmer, RTI International

2 **Estimation and Inference of Domain Means Subject to Shape Constraints**—✦Cristian Oliva, Colorado State University; Mary C. Meyer, Colorado State University; Jean D. Opsomer, Colorado State University

3 **Producing Subnational Estimates from the National Crime Victimization Survey**—✦Andrew Moore, RTI International; Marcus Berzofsky, RTI International; George Couzens, RTI International; Stephanie Zimmer, RTI International; Caroline Scruggs, RTI International

4 **On Mediation Analysis in Public Health Using the Complex Survey Data**—✦Thanh Pham, University of Central Florida; Julia Soulakova, University of Central Florida

5 Generalized Estimating Equations for Social Network Data—✦Miles Ott, Smith College; Bjorn Westgard, HealthPartners; Brian Martinson, HealthPartners; Michael Maciosek, HealthPartners

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

6 **Numerical Comparison of Various Bootstrap Methods in Survey Sampling**—✦Christian Léger, Université de Montréal; Oussama Dabdoubi, Université de Montréal

7 **Meta-Analysis of Survey-Based, Non-Experimental Individual Person Data with Heterogeneous Weighting Schemes**—✦Anna-Carolina Haensch, GESIS Institute ; Bernd Weiss, GESIS - Leibniz-Institute for the Social Sciences

8 **Joint Modeling of Point Estimates and Variances for Survey Estimation**—✦Julie Gershunskaya, U.S. Bureau of Labor Statistics; Terrance Savitsky, Bureau of Labor Statistics

9 **Bayesian Inference for Sample Surveys in the Presence of High-Dimensional Auxiliary Information**—✦Yutao Liu, Columbia University; Andrew Gelman, Columbia University; Qixuan Chen, Columbia University

10 **Calibrated Bayesian Approach for Small Area Prevalence Estimation Using Survey Data with Replicate Weights**—✦Trung Ha, University of Central Florida; Julia Soulakova, University of Central Florida

11 **Quantile Regression Analysis of Survey Data Under Informative Sampling**—✦Daniel Zhao, OU Health Sciences Center; Sixia Chen, University of Oklahoma

12 **Estimating Causal Effects with Propensity Score in Cluster Sample Surveys**—✦Giovanni Nattino, Ohio State University; Bo Lu, The Ohio State University

13 **The Problem of Analytic Error in Secondary Analysis of Survey Data: What We Know, and What We Need to Do About It**—✦Brady T. West, University of Michigan; Joe Sakshaug, University of Manchester

14 **Parameter Estimate Bias Resulting from Level 3 Sample Size Decisions**—✦Tingqiao Chen, ; Frank Lawrence, Michigan State University; Wenjuan Ma, Michigan State University

15 **Comparing Direct Survey and Small Area Estimates of Health Care Coverage in New York**—✦Jeniffer Iriondo Perez, RTI International; Rachel Harter, RTI International; Amang Sukasih, RTI International

16 **Causal Inference with Complex Surveys: a Comparison of Propensity Score Based Methods**—✦Daniele Bottigliengo, Universit‡ degli Studi di Padova; Ileana Baldi, Universit‡ degli Studi di Padova; Corrado Lanera, Universit‡ degli Studi di Padova; Dario Gregori, Universit‡ degli Studi di Padova; Paola Berchialla, Universit‡ degli Studi di Torino

17 **Empirical Bayes Small Area Prediction of Sheet and Rill Erosion Using a Zero-Inflated Lognormal Model**—✦Xiaodan Lyu, Iowa State Univ; Emily Berg, Iowa State University; Heike Hofmann, Iowa State University

18 **Small Area Estimation of HIV Measures in Sub-Saharan Africa**—✦Sahar Zangeneh, Fred Hutchinson Cancer Research Center; Jon Wakefield, Univ of Washington; Ann Duerr, Fred Hutch; Deborah Donnell, Fred Hutch

19 **Machine Learning to Evaluate the Quality of Patient Reported Epidemiological Data**—✦Robert L. Wood, Resonate & Wichita State University; Futoshi Yumoto, Resonate; Rochelle Tractenberg, Georgetown University

434 CC- West Hall B

SPEED: Classification and Data Science—Contributed

Section on Statistical Learning and Data Science, SSC

Chair(s): Paul McNicholas, McMaster University

Section on Statistical Learning and Data Science

21 **Targeted Maximum Likelihood Estimation of Causal Effects Based on Observing a Single Time Series**—✦Ivana Malenica, ; Mark van der Laan, UC Berkeley

22 **Accessible Statistical Reports in R: Using R, Markdown, and Word to Create Accessible Reproducible Documents**—✦Robert Montgomery, NORC; Peter Herman, NORC at the University of Chicago; Qiao Ma, NORC at the University of Chicago; Stephen Schacht, NORC at the University of Chicago

23 **Differentiable Approximations of Hidden Markov Models for Variational Bayesian Inference**—✦Lun Yin, Duke Institute for Brain Sciences; John Pearson, Duke University

24 **How to Effectively Communicate Misunderstood Statistical Terms**—✦Hoiyi Ng, Amazon; Paavni Rattan, Amazon

25 **Aggregated Pairwise Classification of Statistical Shapes with Optimal Points of Projection**—✦Min Ho Cho, The Ohio State University; Sebastian Kurtek, The Ohio State University; Steve MacEachern, The Ohio State University

26 **Supervised Dimension Reduction for Large-Scale Genomic Data with Censored Survival Outcomes Under Possible Non-Proportional Hazards**—✦Lauren Spirko, Temple University; Karthik Devarajan, Fox Chase Cancer Center

27 **Improving a Predictive Model of Student Progress in an Online Course by Adding Learned Features from Unstructured Text Data**—✦Huafeng Zhang, The Refugee Center Online

28 **Classification via Product Conditional Density Estimates: Blending LDA and QDA**—✦Jiae Kim, ; Steve MacEachern, The Ohio State University

29 **Comparison of Missing Data Methods in the Use of LASSO Regression for Model Selection with Applications to the National Trauma Data Bank**—Sarah B Peskoe, Duke University; ✦Tracy Truong, Duke University; Lily R Mundy, Duke University School of Medicine; Ronnie L Shammas, Duke University School of Medicine; Scott T Hollenbeck, Duke University School of Medicine

30 **An Alternative to the Carnegie Classifications: Using Structural Equation Models to Identify Similar Doctoral Institutions**—✦Paul Harmon, Montana State University; Sarah McKnight, Montana State University; Laura Hildreth, Montana State University; Ian C. Godwin, Montana State University Office of Planning and Analysis; Mark Greenwood, Montana State University

SSC

31 **Efficient Semiparametric Generalized Linear Models Based on Exponentially Tilted Splines**—✦William H Aeberhard, Dalhousie University; Mark Hannay, Intrum Justitia CH

Section on Statistical Learning and Data Science

32 **A Machine Learning (ML) Approach to Prognostic and Predictive Covariate Identification for Subgroup Analysis and Hypotheses Generation**—✦David A James, Novartis

33 **A Direct Approach to High-Dimensional Error-In-Variables Regression**—✦Yunan Wu, University of Minnesota; Lan Wang, University of Minnesota

34 **A Modified Approach to Component-Wise Gradient Boosting for High-Dimensional Regression Models**—✦Brandon Butcher, University of Iowa; Brian J. Smith, University of Iowa

35 **Efficient Big Data Model Selection with Applications to Fraud Detection**—✦Gregory Vaughan, Bentley University

36 **Predicting Overflow: a Novel Application of Latrine Sensors and Machine Learning for Optimizing Sanitation Services in Informal Settlements**—✦Phillip Turman-Bryant, Portland State University; Evan Thomas, Portland State University

37 **Undergraduate Data Science Statistics Pathways: What Is Needed for Entry into the Major?**—✦Rebecca Hartzler, Charles A. Dana Center, University of Texas at Austin; Nicholas J. Horton, Amherst College

38 **Assessing Divide-And-Conquer Latent Class Analysis**—✦Qiao Ma, NORC at the University of Chicago; Meimeizi Zhu, NORC at the University of Chicago; Edward Mulrow, NORC at the University of Chicago

39 **Lookalike Audience Modeling**—✦Sam Hawala, Resonate-Networks

Contributed Poster Presentations 3:05 p.m.—3:50 p.m.

435 CC- West Hall B

SPEED: Sports to Fire: Fascinating Applications of Statistics—Contributed

Section on Statistics in Sports, SSC, Section on Statistics in Imaging, Section on Statistical Computing, Section on Statistical Consulting, Section on Statistical Learning and Data Science, Section on Statistics in Epidemiology, Statistical Auditing Interest Group, Transportation Statistics Interest Group, Section on Teaching of Statistics in the Health Sciences, Section for Statistical Programmers and Analysts

Chair(s): Paul McNicholas, McMaster University

Section on Risk Analysis

1 Claim-Level Models Using Statistical Learning Techniques and Risk Analysis—✦Mathieu Pigeon, Université du Québec ‡ Montréal; Francis Duval, Université du Québec ‡ Montréal

Section on Statistics in Sports

2 **Beach Volleyball Team Optimization**—✦Matthew Oehler, BYU

SSC

3 **Distributions of Time to First Spot Fire**—✦Trevor Thomson, Simon Fraser University

Section on Statistics in Sports

4 **Rao-Blackwellizing Field Goal Percentage in the NBA**—✦Daniel Daly-Grafstein, Simon Fraser University; Luke Bornn, Sacramento Kings and Simon Fraser University

SSC

5 **Estimating Attendance at Non-Ticketed Non-Gated Events**—✦Carl Schwarz, Simon Fraser University

Section on Statistics in Sports

6 **Study Baseball Pitching and Swing Quality Factors**—✦Mason Chen, Stanford OHS; Andrew Chen, University of San Francisco

Statistical Auditing Interest Group

7 **Tax Auditing Use of Cumulative Square Root of the Frequency Method**—✦Zachary Rhyne, Ryan, LLC.; Roger C. Pfaffenberger, Ryan, LLC

Section on Teaching of Statistics in the Health Sciences

8 **Teaching Statistics Graduate Students the Importance of Reproducible Research**—✦Kristen McQuerry, University of Kentucky

Section on Statistics in Epidemiology

9 **Shared and Study-Specific Dietary Patterns: a Novel Approach to Replicability and Validity**—✦Roberta De Vito, Carlo La Vecchia, Universit‡ degli Studi di Milano; Giovanni Parmigiani , Harvard T.H. Chan School of Public Health / Dana-Farber Cancer Institute; Valeria Edefonti, Universit‡ degli Studi di Milano

Section on Statistical Consulting

10 **Statistical Ethics and Challenging Substantial Errors in Statistical Methods and Results in a Prominent Peer Reviewed Economics Journal**—✦Chris Barker, Statistical Planning and Analysis Services, Inc.

Section on Statistics in Sports

11 **To Bet or Not to Bet - the Modified Kelly Criteria**—✦Dani Chu, SFU Sports Analytics Club; Yifan Wu, Simon Fraser University; Tim Swartz, Simon Fraser University

12 **The Home Run Spike of MLB 2017: Drop in Quality of Pitch (QOP) Is a Missing Factor**—✦Jason Wilson, Biola University

Section on Statistical Learning and Data Science

13 **An Application of Machine Learning for 3D IC Defect Detection**—✦Meihui Guo, National Sun Yat-Sen University; Yu-Jung Huang, I-Shou University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Transportation Statistics Interest Group

14 **Quantifying the Causal Effects of Peak Load Pricing on Mass Transit Ridership via a Temporal Regression Discontinuity Analysis of Large Scale Smart-Card Data**—✦Daniel Graham, Imperial College London; Haojie Li, Southeast University

Section on Statistics in Sports

15 **The Simple Story of Advanced NBA Metrics**—✦Zach Fulker, University of Pittsburgh; Tyler Folta, University of Pittsburgh; Lucas Mentch, University of Pittsburgh

Section on Statistical Computing

16 **Application of Email Spam Filtering Algorithms to SMS Data**—✦Yishu Xue, University Of Connecticut

Section on Statistics in Sports

17 **MLB Rule IV Draft: Valuing Draft Pick Slots**—✦Anthony Cacchione, City College of New York

18 **Assessing the Impact of Practice Restriction Rules on Injury Rates in the National Football League (NFL)**—✦Zachary Binney, Rollins School of Public Health, Emory University; Cecile Janssens, Rollins School of Public Health, Emory University; Kyle E Hammond, Emory University School of Medicine; Mitchel Klein, Rollins School of Public Health, Emory University; Michael Goodman, Emory University

436 CC- West Hall B

SPEED: Tests, Trials, Biomarkers and Other Topics in Biometrics—Contributed

Biometrics Section, Biopharmaceutical Section, ENAR

Chair(s): Paul McNicholas, McMaster University

Biometrics Section

21 **Some T-Tests for N-Of-1 Trials with Serial Correlation**—✦Ji-Ling Tang, University of Arkansas for Medical Sciences; Reid D. Landes, University of Arkansas for Medical Sciences; Anne Holbrook, McMaster University; Mark S Mennemeier, University of Arkansas for Medical Sciences; J. Tyler Floyd, University of Central Arkansas

22 **Some T-Tests for N-Of-1 Trials with Serial Correlation: Correction Factors for Trials with Few Observations**—✦Reid D. Landes, University of Arkansas for Medical Sciences; Ji-Ling Tang, University of Arkansas for Medical Sciences; Mark S Mennemeier, University of Arkansas for Medical Sciences; J. Tyler Floyd, University of Central Arkansas; Anne Holbrook, McMaster University

23 **Hybrid Cluster-Individual Randomization Allocation**—✦Yi-Fan Chen, University of Illinois at Chicago; Jonathan Yabes, University of Pittsburgh

24 **Adjusting a Finite Population Block Kriging Estimator for Imperfect Detection**—✦Matthew Higham,

Biopharmaceutical Section

25 **Using Logistical Regression to Build a Better Diathesis Model of Dupuytren's Contracture Recurrence**—✦Brian Cohen, ACI Clinical

Biometrics Section

26 **A Multivariate Zero-Inflated Logistic Model for Human Microbiome Data**—✦Zhigang Li, ; James O'Malley, Dartmouth; Hongzhe Li, University of Pennsylvania

27 **Interactive Applications Using R and the Shiny Package for Clinical Trial Design and Simulations**—✦Jing Wang, Pfizer, Inc; Yuanbo Song, Novartis

28 **A Two-Stage Method to Analyze Multivariate Cluster Biomarkers in Prediction on a Single Binary Outcome**—✦Xiaoying Yu, University of Texas Medical Branch at Galveston; Wenyaw Chan, University of Texas Health Science Center at Houston; Gracie Vargas, University of Texas Medical Branch at Galveston; Rahul Pal, University of Texas Medical Branch at Galveston

29 **An Estimation Method for Enzyme Kinetic Model Parameters Based on Bayesian Approach**—✦Boseung Choi, Korea University; Jae Kyoung Kim, Korea Advanced Institute of Science and Technology; Grzegorz A Rempala, The Ohio State University

Biopharmaceutical Section

30 **Statistical Precision of Time-To-Event Endpoint in Single Arm Observational Study Using Monte Carlo Simulation**—✦Meijing Wu, AbbVie; Hongwei Wang, AbbVie Inc; Yabing Mai, AbbVie, Inc; Dajun Tian, Chiltern

31 **Multiple Testing Procedure Consideration in Clinical Trials**—✦Rachael Wen, Sanofi

32 **Practical Determining the Late Effect Parameter in Fleming-Harrington Test When a Delayed Treatment Effect Is Predicted**—✦Yuichiro Kaneko, Astellas Pharma; Satoshi Morita, Kyoto University

Biometrics Section

33 **Inferring Networks from Personal, Dense, Dynamic Data Clouds of Biological and Quantified-Self Data**—✦Elisa Sheng, Arivale

34 **Optimal Testing Configurations for Group Testing**—✦Brianna D. Hitt, University of Nebraska-Lincoln; Christopher R. Bilder, University of Nebraska-Lincoln; Joshua M. Tebbs, University of South Carolina; Christopher S. McMahan, Clemson University

Biopharmaceutical Section

35 **Common Risk Difference Test and Interval Estimation of Risk Difference for Stratified Bilateral Correlated Data**—✦Xi Shen, State University of New York At Buffalo; Changxing Ma, State University of New York At Buffalo; Guoliang Tian, Southern University of Science and Technology; Kam Chuen Yuen, The University of Hong Kong

36 **Functional Data Analysis in Dose-Adjusted Tacrolimus Trough Concentration Modeling: a New Method to Compare Intrapatient Variance Between Patient Cohorts**—✦Janet Kim, Astellas Pharma Global Development, Inc.; Sam Wilson, Astellas Pharma Global Development, Inc.; Jason J Schwartz, Astellas Pharma Global Development, Inc.

TUESDAY

37 **Probability of Success Computation for Survival Models**—✦Shanhong Guan, Pharmacyclics

Biometrics Section

38 **Design Considerations When Comparing Control, Treatment, and Treatment Plus in Randomized Trials**—✦Abigail Shoben, Ohio State University

Invited Sessions 4:00 p.m.—5:50 p.m.

437 CC-West Ballroom BC

Deming Lecture—Invited

Deming Lectureship Committee, ASA

Chair(s): Arthur B Kennickell, Self

4:05 p.m. Improving the Quality and Value of Statistical Information: Fourteen Questions on Management—✦John L. Eltinge, United States Census Bureau

5:30 p.m. Floor Discussion

Invited Sessions 8:00 p.m.—9:30 p.m.

438 CC-West Ballroom BC

ASA President's Address and Founders and Fellows Recognition—Invited

ASA

Organizer(s): Lisa LaVange, University of North Carolina

Chair(s): Barry Nussbaum,

8:05 p.m. Choose to Lead—✦Lisa LaVange, University of North Carolina

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

WEDNESDAY AUG. 1

Special Presentation 8:30 a.m.—10:20 a.m.

448 CC-West Ballroom A

Introductory Overview Lecture: The Statistical and Data Revolution in the Social Sciences—Invited

JSM Partner Societies, Social Statistics Section

Organizer(s): Adrian Raftery, University of Washington

Chair(s): Adrian Dobra, University of Washington

8:35 a.m.	The Statistical and Data Revolution in Demography—✦Adrian Raftery, University of Washington
9:05 a.m.	The Human Experience in Context: Collecting and Analyzing Social Network Data—✦Tyler McCormick, University of Washington
9:35 a.m.	Modern Statistical Challenges in Criminology—✦Elena A Erosheva, University of Washington
10:05 a.m.	Floor Discussion

Invited Sessions 8:30 a.m.—10:20 a.m.

449 CC-East 10

■ ● **Recent Advances in Change-Point Detection and Segmentation—Invited**

Section on Nonparametric Statistics, IMS, ENAR

Organizer(s): Piotr Fryzlewicz, London School of Economics

Chair(s): Alexander Aue, University of California, Davis

8:35 a.m.	High-Dimensional Change Point Estimation via Sparse Projection—✦Tengyao Wang, University of Cambridge; Richard J Samworth, University of Cambridge
8:55 a.m.	Exact Spike Train Inference via Ell_0 Optimization—✦Daniela Witten, University of Washington; Sean Jewell, University of Washington
9:15 a.m.	Finite Alphabet Blind Separation—✦Merle Behr, University of Goettingen; Axel Munk, University of Goettingen; Chris Holmes, University of Oxford
9:35 a.m.	Making Change-Point Detection Data-Adaptive—✦Piotr Fryzlewicz, London School of Economics
9:55 a.m.	Detection and Estimation of Local Signals—✦David O Siegmund, Stanford University
10:15 a.m.	Floor Discussion

450 CC-West 203

Inference with Clustered Data: Lessons from Multiple Disciplines—Invited

Survey Research Methods Section, Business and Economic Statistics Section, Biometrics Section, SSC

Organizer(s): Stas Kolenikov, Abt Associates

Chair(s): Raphael Nishimura, Abt Associates

8:35 a.m.	Modeling Covariance Structure for Longitudinal Data—✦Annie Qu, University of Illinois at Urbana-Champaign
9:00 a.m.	How Clustered Standard Errors Are Changing Applied Econometrics—✦James Gordon MacKinnon, Queen's University
9:25 a.m.	Pseudo-Population Bootstrap Procedures for Multi-Stage Sampling Designs—✦Sixia Chen, University of Oklahoma; David Haziza, Université de Montréal
9:50 a.m.	Disc: Stas Kolenikov, Abt Associates
10:15 a.m.	Floor Discussion

451 CC-West 301

■ ● **Getting Shots Inside the Box-Cox -- Transformational Soccer Analytics—Invited**

Section on Statistics in Sports, Significance Magazine, Section on Statistical Learning and Data Science

Organizer(s): Luke Bornn, Sacramento Kings and Simon Fraser University

Chair(s): Dan Cervone, LA Dodgers

8:35 a.m.	Interpretable Analysis of Team Performance in Soccer Using Tracking Data: a Hybrid of Supervised and Unsupervised Methods.—✦Paul David Power, STATS
9:00 a.m.	From Intuition to Objective Analysis: Data-Oriented Strategies at F.C. Barcelona—✦Javier Eduardo Fern·ndez, F.C. Barcelona
9:25 a.m.	Data Science with Your Hair on Fire: Applied Research in Soccer—✦Ted Knutson, StatsBomb Services
9:50 a.m.	Disc: Luke Bornn, Sacramento Kings and Simon Fraser University
10:15 a.m.	Floor Discussion

452 CC-West 109

■ ● **Advancements in Complex Functional Data Analysis—Invited**

ENAR, Biometrics Section, Section on Nonparametric Statistics, SSC

Organizer(s): Luo Xiao, North Carolina State University

Chair(s): Luo Xiao, North Carolina State University

8:35 a.m. Boosting Functional Response Models for Location, Scale, and Shape with an Application to Bacterial Competition—Almond Stˆcker, LMU Munich; Sarah Brockhaus, LMU Munich; Sophia Schaffer, LMU Munich; Benedikt von Bronk, LMU Munich; Madeleine Opitz, LMU Munich; ✦Sonja Greven, LMU Munich

9:00 a.m. Matrix Factorization Approaches to Analysis of Functional Count Data—Daniel Backenroth, Columbia University; Russell T Shinohara, University of Pennsylvania; ✦Jeff Goldsmith, Columbia University

9:25 a.m. Longitudinal Dynamic Functional Regression: Modeling and Inference—Md Islam, North Carolina State University; ✦Ana-Maria Staicu, NC State University; Eric van Heugten, North Carolina State University

9:50 a.m. Bayesian Regression Models for Big Spatially or Longitudinally Correlated Functional Data—✦Jeffrey S Morris, The University of Texas M.D. Anderson Cancer Center; Lin Zhang, University of Minnesota; Hongxiao Zhu, Virginia Tech University; Veera Baladandayuthapani, UT MD Anderson Cancer Center; Hojin Yang, The University of Texas M.D. Anderson Cancer Center; Wonyul Lee, Food and Drug Administration; Michelle Miranda, The University of Texas M.D. Anderson Cancer Center; Philip Rausch, Humboldt University

10:15 a.m. Floor Discussion

453 CC-West 215/216

● Novel Theory and Methods in Big Data Analytics—Invited

Section on Statistical Learning and Data Science, Section on Physical and Engineering Sciences, Section on Statistical Computing, SSC

Organizer(s): Ping Ma, University of Georgia

Chair(s): Ping Ma, University of Georgia

8:35 a.m. Statistical Inference for Big Data via Optimal Subsampling—✦HaiYing Wang, University of Connecticut

9:00 a.m. Statistical Leverage and Its Usage in Variable Screening—✦Wenxuan Zhong, University of Georgia; Yiwen Liu, University of Georgia; Peng Zeng, Auburn University

9:25 a.m. Complex Interaction Modeling with Liquid Association—✦Ker-Chau Li, Institute of Statistical Science, Academia Sinica

9:50 a.m. Iterative Random Forests (IRF) to Discover Predictive and Stable High-Order Interactions—✦Bin Yu, UC Berkeley; Sumanta Basu, Cornell University; Karl Kumbier, UC Berkeley; Ben Brown, LBNL and University of Birmingham

10:15 a.m. Floor Discussion

454 CC-West 110

■ ● Advances and Applications of Joint Modeling for Longitudinal and Time-To-Event Data—Invited

WNAR, ENAR, Biometrics Section, SSC

Organizer(s): Peter Gilbert, Fred Hutchinson Cancer Research Center; Yunda Huang, Fred Hutchinson Cancer Research Center

Chair(s): Ross Prentice, Fred Hutchinson Cancer Research Center

8:35 a.m. A Nonlinear Model for Truncated and Mismeasured Time-Varying Covariates in Joint Models for Longitudinal and Survival Data—✦Lang Wu, University of British Columbia

8:55 a.m. Joint Analysis of Multiple Highly Correlated Biomarkers and an Event Time via a Longitudinal Principal Component Approach—✦Gang Li, UCLA

9:15 a.m. Improve Risk Prediction Model Estimation with Longitudinal Surrogate Markers—✦Yu Zheng, Harvard T.H. Chan School of Public Health; Tianxi Cai, Harvard T.H. Chan School of Public Health; Lu Tian, Stanford University School of Medicine

9:35 a.m. Assessing Pharmacokinetic Marker Correlates of a Failure Time Outcome, with Application to HIV Prevention Efficacy Trials—✦Peter Gilbert, Fred Hutchinson Cancer Research Center; Lily Zhang, Fred Hutchinson Cancer Research Center; Erika Thommes, Fred Hutchinson Cancer Research Center; Yunda Huang, Fred Hutchinson Cancer Research Center

9:55 a.m. Disc: Patrick James Heagerty, University of Washington

10:15 a.m. Floor Discussion

455 CC-East 16

■ ● Recent Advances in Multiple Graph Inference—Invited

IMS, Section on Statistical Learning and Data Science, Section on Nonparametric Statistics

Organizer(s): Vince Lyzinski, University of Massachusetts Amherst; Daniel L Sussman, Boston University

Chair(s): Daniel L Sussman, Boston University

8:35 a.m. Omnibus Embeddings for Mutliple Graph Inference—✦Avanti Athreya, Johns Hopkins University; Keith Levin, University of Michigan; Minh Tang, Johns Hopkins University; Carey E Priebe, Johns Hopkins University; Vince Lyzinski, University of Massachusetts Amherst

9:00 a.m. Graph Matching and Subsequent Inference in Errorfully Observed Network Data—✦Vince Lyzinski, University of Massachusetts Amherst

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

9:25 a.m. Scalable Bayes Inference on Big Dependent Networks—✦David B Dunson, Duke University

9:50 a.m. Simultaneous Prediction and Community Detection on Networks with Application to Neuroimaging—Jes˙s Arroyo , University of Michigan; ✦Elizaveta Levina, University of Michigan

10:15 a.m. Floor Discussion

456 CC-West 306

● Introductory Lectures on Recent Advancements in Computational Statistics—Invited

Statistics Surveys Online Journal, Section on Statistical Graphics, Section on Statistical Computing, SSC

Organizer(s): Wendy L Martinez, Bureau of Labor Statistics

Chair(s): Richard Lockhart, Simon Fraser University

8:35 a.m. Visualizing Data Using T-SNE—✦Laurens van der Maaten, Facebook AI Research

9:00 a.m. Beyond the Bayesian Lasso: a Review of Continuous Shrinkage Priors—✦Maryclare Griffin, University of Washington

9:25 a.m. Topological Data Analysis: Case Studies and an Applied Overview—✦Adam Jaeger, Indiana University

9:50 a.m. Disc: Edoardo M Airoldi , Harvard University

10:10 a.m. Floor Discussion

457 CC-West 224

■ Statistical Methods for Remote Sensing Data—Invited

Section on Physical and Engineering Sciences, Section on Statistics and the Environment, ENAR, Quality and Productivity Section

Organizer(s): Jonathan Hobbs, Jet Propulsion Laboratory

Chair(s): Maggie Johnson, SAMSI

8:35 a.m. Simulation-Based Uncertainty Quantification for Optimal Estimation Remote Sensing Retrievals—✦Amy Braverman, Jet Propulsion Laboratory; Jonathan Hobbs, Jet Propulsion Laboratory

9:05 a.m. A General Framework for Vecchia Approximations of Gaussian Processes—✦Matthias Katzfuss, Texas A&M University; Joseph Guinness, North Carolina State University

9:35 a.m. Joint Hierarchical Models for Sparsely Sampled High-Dimensional LiDAR and Forest Variables—✦Andrew Oliver Finley, Michigan State University; Hans-Erik Andersen, USDA Forest Service; Sudipto Banerjee, UCLA School of Public Health; Bruce Douglas Cook, NASA Goddard Space Flight Center; Abhi Datta, Johns Hopkins Bloomberg School of Public Health; Douglas C Morton, NASA Goddard Space Flight Center

10:05 a.m. Floor Discussion

Invited Panels 8:30 a.m.—10:20 a.m.

458 CC-West 211

■ ● Small Data and N-Of-1 Trials: Developing Personalized Biostatistics for Personalized Medicine and Individualized Health Care Delivery—Invited

Mental Health Statistics Section, Health Policy Statistics Section, Biometrics Section

Organizer(s): Richard L. Kravitz, University of California Davis; Naihua Duan, Columbia University

Chair(s): Naihua Duan, Columbia University

Panelists: ✦Christopher Schmid, Brown University

✦Deborah Estrin , Cornell Tech

✦Ying Kuen Ken Cheung, Columbia University

✦Mark Drangsholt, University of Washington

✦Richard L. Kravitz, University of California Davis

✦Xiao-Li Meng, Harvard University

10:10 a.m. Floor Discussion

459 CC-West 118

Impostor Syndrome—Invited

Committee on Minorities in Statistics, Committee on Women in Statistics, ASA Caucus of Academic Representatives, Caucus for Women in Statistics

Organizer(s): Saki Kinney, RTI International

Chair(s): Kimberly F Sellers, Georgetown University

Panelists: ✦Rebecca W Doerge, Carnegie Mellon University

✦Alicia Carriquiry, Iowa State University

✦Sastry Pantula, Oregon State University

10:10 a.m. Floor Discussion

460 CC-West 210

■ ● Worldwide Statistics Without Borders Projects: Statistics, Data Visualization, and Decision Making—Invited

Statistics Without Borders, Caucus for Women in Statistics

Organizer(s): Michelle Vanchu-Orosco, Statistics Without Borders

Chair(s): Michelle Vanchu-Orosco, Statistics Without Borders

Panelists: ✦Ella Temprosa, George Washington University

✦Ariel Finno, ASAE Foundation

✦Bradley Kenny, Comcast

10:10 a.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Topic Contributed Sessions 8:30 a.m.—10:20 a.m.

461 CC-West 202

■ ● **Bugs, Bugs Everywhere - the Statistics Behind Our Microbiome—Topic Contributed**

Section on Statistical Graphics, Section on Statistics in Genomics and Genetics, ENAR

Organizer(s): Ni Zhao, Johns Hopkins University

Chair(s): Ni Zhao, Johns Hopkins University

8:35 a.m. An Integrated Microbe-Metabolite Interaction Map—✦Jing Ma, Fred Hutch Cancer Research Center

8:55 a.m. Concomitant Regression Models for Microbiome Data—✦Christian Mueller, Flatiron Institute; Aditya Mishra, Flatiron Institute; Patrick Combettes, North Carolina State University

9:15 a.m. Interactive Statistical and Visual Analysis of Longitudinal Metagenomic—✦Hector Corradoa Bravo, University of Maryland

9:35 a.m. Compositional Knockoff Filter for FDR Control in Microbiome Regression Analysis—✦Arun Srinivasan, Pennsylvania State Univ; Lingzhou Xue, Penn State University and National Institute of Statistical Sciences; Xiang Zhan, Pennsylvania State University

9:55 a.m. Floor Discussion

462 CC-East 9

■ ● **SAMSI Program on Transportation Statistics—Topic Contributed**

Transportation Statistics Interest Group, Statistical and Applied Mathematical Sciences Institute, Statistics and Public Policy, Survey Research Methods Section

Organizer(s): David Banks, Duke University

Chair(s): Huiying Mao, Virginia Tech / VTTI

8:35 a.m. Model Driving Risk Through Naturalistic Driving Studies—✦Feng Guo, Virginia Tech

8:55 a.m. Difference-In-Differences Versus Empirical Bayes for Causal Inference in Traffic Safety Research—✦Fan Li, Duke University

9:15 a.m. Clustering Travel Behavior Time Series Using Topological Data Analysis—✦Renjie Chen, ; nalini ravishanker, University of Connecticut; Jingyu Zhang, University of Connecticut; Karthik Konduri, University of Connecticut

9:35 a.m. Exploring Efficiency of Statistics Methods to Compare Highly Automated Vehicle and Human Crash Rates—✦Carol A.C. Flannagan, University of Michigan, Transport Research Institute

9:55 a.m. Disc: James L Rosenberger, NISS (National Institute of Statistical Sciences) and Penn State

10:15 a.m. Floor Discussion

463 CC-West 206/207

■ ● **Novel Uses of Text Analysis in Government Agencies—Topic Contributed**

Government Statistics Section, Business and Economic Statistics Section, Section on Statistical Learning and Data Science

Organizer(s): Wendy L Martinez, Bureau of Labor Statistics

Chair(s): Terrance Savitsky, Bureau of Labor Statistics

8:35 a.m. Identifying Misclassifications in Consumer Expenditure Data—✦Clayton Knappenberger, U.S. Bureau of Labor Statistics

8:55 a.m. Automatically Generating News Release Statements from Structured Data—✦Brandon Kopp, Bureau of Labor Statistics

9:15 a.m. The CFR Miner: Natural Language Processing of the Code of Federal Regulations Using R Studio and Shiny—✦Richard Schwinn, U.S. Small Business Administration

9:35 a.m. Towards Automated Boilerplate Detection—✦Marco Enriquez, US Securities & Exchange Comm

9:55 a.m. Disc: E. James Harner, West Virginia University

10:15 a.m. Floor Discussion

464 CC-West 304/305

● **New Directions in Personalized Treatment Selection—Topic Contributed**

International Indian Statistical Association, ENAR, Biometrics Section

Organizer(s): Chathura Siriwardhana, University of Hawaii

Chair(s): Robert Lund, Clemson University

8:35 a.m. Multiplicity-Controlled Benefiting Subgroup Identification via Credible Subgroups—✦Patrick Schnell, Ohio State University; Qi Tang, Sanofi; Peter M¸ller, University of Texas Austin; Brad Carlin, University of Minnesota

8:55 a.m. Q-Learning with Missing Data—✦Lin Dong, North Carolina State University

9:15 a.m. A Probability Based Method for Selecting the Optimal Personalized Treatment from Multiple Treatments—✦Karunarathna B Kulasekera, University of Louisville; Chathura Siriwardhana, University of Hawaii; Somnath Datta, University of Florida

9:35 a.m. Constructing Stabilized Dynamic Treatment Regimes—✦Guanhua Chen, University of Wisconsin-Madison; Ruoqing Zhu, University of Illinois Urbana-Champaign; Yingqi Zhao, Fred Hutchinson Cancer Research Center; Yingye Zheng, Fred Hutchinson Cancer Research Center

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

9:55 a.m. Selection of the Optimal Personalized Treatment from Multiple Treatments with Multivariate Outcome Measures—✦Somnath Datta, University of Florida; Chathura Siriwardhana, University of Hawaii; Karunarathna B Kulasekera, University of Louisville

10:15 a.m. Floor Discussion

465 CC-West 204

■ ● Probabilistic Record Linkage: Better Assumptions, Scalable Inference, and Accounting for Uncertainty—Topic Contributed

Social Statistics Section, Survey Research Methods Section, Government Statistics Section

Organizer(s): Jared S Murray, University of Texas at Austin

Chair(s): Rebecca Nugent, Carnegie Mellon University

8:35 a.m. When There Can Be Only One: The Highlander Probability Model for Historical Record Linkage with Labeled Data—✦Jared S Murray, University of Texas at Austin

8:55 a.m. Incorporating Sociodemographic Transitions and Family Network Structure into Historical Record Linkage—✦Kayla Frisoli, ; Rebecca Nugent, Carnegie Mellon University; Brendan Murphy, University College Dublin

9:15 a.m. Improving Probabilistic Record Linkage: Accurate Links, Probabilities, and Measures of Uncertainty—✦Bradley Spahn, Stanford University; Brendan McVeigh, Carnegie Mellon University; Jared S Murray, University of Texas at Austin

9:35 a.m. Multiple Imputation of Probabilistic Linkage of Employers in Survey and Administrative Data: Creating CenHRS—✦Dhiren Patki, University of Michigan

9:55 a.m. Bayesian Record Linkage with Sub-Models—✦Joan Heck,

10:15 a.m. Floor Discussion

466 CC-West 222

■ ● First-Hitting-Time Based Threshold Regression and Applications—Topic Contributed

Section on Risk Analysis, Lifetime Data Analysis Interest Group, International Chinese Statistical Association, SSC

Organizer(s): Mei-Ling Ting Lee, University of Maryland

Chair(s): Man-Hua Chen, Tamkang University

8:35 a.m. Estimating Time-to-Event Characteristics via Longitudinal Threshold Regression Models - an Application to Cervical Dilation Progression—✦Caroline Mulatya, Emmes; Alexander C McLain , University of South Carolina; Bo Cai, University of South Carolina; James Hardin, University of South Carolina; Paul S Albert, National Cancer Institute

8:55 a.m. Bayesian Semiparametric Threshold Regression—✦Jonathan Race, Michael Pennell, Ohio State University

9:15 a.m. Distribution-Free Inference Methods for Threshold Regression—✦Mei-Ling Ting Lee, University of Maryland; George A Whitmore, McGill University

9:35 a.m. Censored Threshold Regression with Diverging Number of Covariates—✦Takumi Saegusa, University of Maryland; Mei-Ling Ting Lee, University of Maryland

9:55 a.m. Disc: George A Whitmore, McGill University

10:15 a.m. Floor Discussion

467 CC-West 122

■ Statistical Advances for Cancer Genomics and Immunogenomics - from Single-Cell to Correlated Population—Topic Contributed

Biometrics Section, Section on Statistics in Genomics and Genetics, WNAR, SSC

Organizer(s): Qunhua Li, Penn State University

Chair(s): Ying Huang, Fred Hutchinson Cancer Research Center

8:35 a.m. Variability-Preserving Imputation for Accurate Gene Expression Recovery in Single Cell RNA Sequencing Studies—✦Mengjie Chen, University of Chicago; Xiang Zhou, U of Michigan

8:55 a.m. ScImpute: Accurate and Robust Imputation for Single Cell RNA-Seq Data—✦Jingyi Li, University of California, Los Angeles; Wei Li, University of California, Los Angeles

9:15 a.m. Using RNA-Seq Data to Study Patients' Response on Tumor Immunotherapy—✦Wei Sun, Fred Hutchinson Cancer Research Center; Chong Jin, UNC-Chapel Hill; Paul Little, UNC Chapel Hill; Danyu Lin, University of North Carolina; Mengjie Chen, University of Chicago

9:35 a.m. A Discrete Threshold Model for the Clone Size Distribution of the Immune Repertoire—✦Qunhua Li, Penn State University; Hillary Koch, Penn State University; Dmytro Starenki, Hudson Alpha Institute for Biotechnology; Sara Cooper, HudsonAlpha Institute of Biotechnology; Rick Myers, HudsonAlpha Institute of Biotechnology

9:55 a.m. Sequencing Data, Repeated Measures and Genetic Heritability—✦Katerina Kechris, Colorado School of Public Health; Brian Vestal, National Jewish Health; Wen Jenny Shi, University of Colorado Anschutz Medical Campus; Pratyaydipta Rudra, University of Colorado at Denver; Pamela Russell, University of Colorado Anschutz Medical Campus; Laura Saba, University of Colorado Anschutz Medical Campus

10:15 a.m. Floor Discussion

468 CC-West 120

■ ● Blinded Data Reviews Are Necessary in Today's Clinical Trials—Topic Contributed

Biopharmaceutical Section

Organizer(s): Ibrahim Turkoz, Janssen Research and Development, LLC

Chair(s): Ibrahim Turkoz, Janssen Research and Development, LLC

8:35 a.m. Predicting the Timing of the Final Event by Fitting B Splines to Poisson Intensity Rates—✦Marcus Sobel, Temple University; Ibrahim Turkoz, Janssen Research and Development, LLC

8:55 a.m. Estimating Event Rate Differences Using Data from Blinded Trials—✦A. Gould, Merck Research Laboratories; Bill Wang, Merck

9:15 a.m. Bayesian Blinded Sample Size Adjustment for Risk Differences—✦Andrew Hartley, PPD, Inc.

9:35 a.m. Blinded vs. Unblinded Sample Size Re-Estimation: When and What?—✦Yili Pritchett, MedImmune

9:55 a.m. Tools and Techniques for Blinded Data Reviews in Ongoing Clinical Trials—✦Suresh Ankolekar, Cytel Inc.; Hrishikesh Kulkarni, Cytel Inc.

10:15 a.m. Floor Discussion

469 CC-West 119

■ Novel Trial Designs in Precision Medicine—Topic Contributed

Biopharmaceutical Section

Organizer(s): Jianchang Lin, Takeda Pharmaceuticals

Chair(s): Rachael Liu, Takeda Pharmaceuticals

8:35 a.m. Subgroup Selection in Adaptive Signature Designs of Confirmatory Clinical Trials—✦Zhiwei Zhang, University of California at Riverside

8:55 a.m. A Case Study of Adaptive Seamless Design with Subpopulation Selection in Oncology—✦Rui Qin, Janssen Pharmaceutical R&D

9:15 a.m. REMAP-CAP: a Precision Medicine Embedded Platform Trial for Community Acquired Pneumonia—✦Scott Berry, Berry Consultants

9:35 a.m. A Biomarker-Directed Phase 2 Oncology Umbrella Trial to Target Combination Therapy in NSCLC—✦Hua Ma, Merck; Robin Mogg, Merck Research Laboratories

9:55 a.m. Adaptive Multi-Combination Platform Trials in Oncology; Considerations for Study Designs—Stuart Bailey, Novartis Institutes for Biomed Research; ✦Jennifer Gauvin, Novartis

10:15 a.m. Floor Discussion

470 CC-East 17

● Recent Theoretical Advancements for MCMC Algorithms—Topic Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): James Flegal, University of California, Riverside

Chair(s): Galin Jones, University of Minnesota

8:35 a.m. Convergence Complexity Analysis of Albert and Chib's Algorithm—✦Qian Qin, University of Florida; James P. Hobert, University of Florida

8:55 a.m. MCMC for High-Dimensional Bayesian Regression—✦Dootika Vats,

9:15 a.m. Multivariate Output Analysis for Markov Chain Monte Carlo—✦James Flegal, University of California, Riverside

9:35 a.m. Selection of Proposal Distributions for Multiple Importance Sampling—✦Vivekananda Roy, Iowa State University; Evangelos Evangelou, University of Bath

9:55 a.m. Floor Discussion

471 CC-West 205

■ Innovative and Effective Teaching for Large-Enrollment Statistics and Data Science Courses—Topic Contributed

Section on Statistical Education, Section on Teaching of Statistics in the Health Sciences, Section on Statistical Computing

Organizer(s): Matthew D Beckman, Pennsylvania State University

Chair(s): Kari Lock Morgan, Pennsylvania State University

8:35 a.m. Effective Pedagogy in Large-Enrollment Statistics Courses—✦Matthew D Beckman, Pennsylvania State University

8:55 a.m. Large-Scale Interactives for Large-Enrolment Courses—✦Anna Fergusson, The University of Auckland

9:15 a.m. Teaching Data Science as a First Statistics Course to 1,000 Students Per Semester—✦John DeNero, University of California, Berkeley; Ani Adhikari, University of California, Berkeley

9:35 a.m. Productive Struggle Toward Statistical Thinking: Fostering a Student-Active Learning Environment in a Large Class—✦Catherine Case,

9:55 a.m. Disc: Chris Wild, University of Auckland

10:15 a.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

472 CC-East 14

■ ● Junior Research in Bayesian Nonparametric Modeling of Complex or Unknown Populations—Topic Contributed

International Society for Bayesian Analysis (ISBA)

Organizer(s): Roberta De Vito

Chair(s): Roberta De Vito

8:35 a.m. Bayesian Nonparametric Mixed Effects Models in Microbiome Data Analysis—✦Boyu Ren, Harvard T.H. Chan School of Public Health

8:55 a.m. Bayesian Non and Semiparametric Methods for Structured Sequential Data—✦Abhra Sarkar, University of Texas at Austin

9:15 a.m. Hierarchical Infinite Latent Factor Models—✦Elizabeth Lorenzi, Duke University; Ricardo Henao, Duke University; Katherine Heller, Duke University

9:35 a.m. A Bayesian Nonparametric Approach to Tissue Specific Genome Association Detection—✦Bianca Dumitrascu, Princeton University; Roberta De Vito, ; Barbara Engelhardt, Princeton University

9:55 a.m. Black Box Variational Inference—✦Rajesh Ranganath, NYU Courant Institute of Mathematical Science

10:15 a.m. Floor Discussion

473 CC-West 214

■ ● Advances in Measuring Health Care Quality and Disparities—Topic Contributed

Health Policy Statistics Section

Organizer(s): Amelia M Haviland, Carnegie Mellon University - Heinz College

Chair(s): David Choi, Carnegie Mellon University

8:35 a.m. Using Ancillary Sociodemographics to Estimate Probabilities That Potentially Ambiguous Responses to Sexual Orientation Survey Items Were Intended to Indicate Sexual Minority Status—✦Marc Elliott, RAND

8:55 a.m. Mortality Prediction with Multiple Unordered Treatments for Aortic Valve Replacement—Samrachana Adhikari, Harvard Medical School; Sherri Rose, Harvard Medical School; Sharon-Lise Normand, Harvard University; Jordan Bloom, Harvard Medical School; David Shahian, Harvard Medical School; ✦Jake Spertus, Harvard Medical School

9:15 a.m. Effect of Affiliation with a Health System on the Performance of Critical Access Hospitals—✦Maria DeYoreo, RAND Corporation

9:35 a.m. Measuring Latent Quality of Medical Groups Using IRT Models Accounting for Missing Data: Can We Get Reliable Estimates of Quality After All?—✦Amelia M Haviland, Carnegie Mellon University - Heinz College; Denis Agniel, RAND Corporation; Cheryl Damberg, RAND Corporation; Paul Shekelle, RAND Corporation

9:55 a.m. Disc: John L. Adams, Kaiser Permanente - Research

10:15 a.m. Floor Discussion

Contributed Sessions 8:30 a.m.—10:20 a.m.

474 CC-West 209

SPEED: Infectious Disease, Environmental Epidemiology, and Diet—Contributed

Section on Statistics in Epidemiology, Biometrics Section, Section for Statistical Programmers and Analysts

Chair(s): Kathleen Jablonski, George Washington University

8:35 a.m. A Weighted Kernel Machine Regression Approach to Environmental Pollutants and Infertility—✦Zhen Chen, NICHD/NIH; Wei Zhang, BBB/DIPHR/NICHD; Aiyi Liu, BBB/DIPHR/NICHD; Germaine Buck Louis, George Mason University

8:40 a.m. Multi-Frame Sampling Design for WTCHR—✦Sukhminder Osahan, NYC DOHMH

8:45 a.m. Application of Principal Components Analysis to Urine Metal and Metalloid Exposures in the National Health and Nutrition Examination Survey (NHANES) Data—✦Po-Yung Cheng, CDC; Robert L Jones, CDC; Kathleen L Caldwell, CDC

8:50 a.m. Statistical Approaches to Assess Early Life Exposure to Complex Mixtures and Associations with Latent Patterns of Neurodevelopmental Trajectories—✦Shelley H. Liu, Icahn School of Medicine at Mount Sinai; Brent A. Coull, Harvard TH Chan School of Public Health; Robert Wright, Icahn School of Medicine at Mount Sinai

8:55 a.m. A Data-Driven Approach for Assessing the Risk of Dengue Transmission Using High-Resolution Weather Data—✦Chathurika Hettiarachchige, IBM Research - Australia; Roslyn Hickson, IBM Research - Australia; Stefan von Cavallar, IBM Research - Australia; Timothy Lynar, IBM Research - Australia; Manoj Gambhir, IBM Research - Australia

9:00 a.m. Trends of Influenza Vaccination Coverage Among Adult Populations, United States, 2010-2016—✦Pengjun Lu, CDC/NCIRD/ISD/AB; Mei-Chuan Hung, CDC; Alissa O'Halloran, CDC; Helen Ding, CDC; Walter Williams, CDC; James Singleton , CDC

9:05 a.m. Longitudinal Regression Trees: An Application to Environmental Exposure and Growth—✦Brianna Heggeseth, Macalester College; Anna Neufeld, Williams College

9:10 a.m. Modeling Vertical Transmission of Canine Visceral Leishmaniasis in Foxhounds in the United States—✦Marie Ozanne, University of Iowa

9:15 a.m. Comparison Between HIV Routine Testing Data and Sentinel Surveillance Data—✦Ben Sheng, Pennsylvania State University; Jeffrey Eaton, Imperial College London; Kimberly Marsh, UNAIDS; Mary Mahy, UNAIDS; Le Le Bao, Penn State University

9:20 a.m. Estimating Efficacies of Supplementary Immunization Activities via Discrete Time Modeling of Disease Incidence Time Series—✦Qi Dong, University of Washington; Jon Wakefield, Univ of Washington; Kevin McCarthy, Institute for Disease Modeling; Niket Thakkar, Institute for Disease Modeling; Kurt Frey, Institute for Disease Modeling

9:30 a.m. Causal Inference for Infectious Disease Interventions in Networks—✦Xiaoxuan Cai, Yale University; Forrest W Crawford, Yale School of Public Health

9:35 a.m. Online Sequential Monitoring of Disease Incidence Rates with an Application to the Florida Influenza-Like Illness Data—✦Kai Yang, University of Florida; Peihua Qiu, University of Florida

9:40 a.m. Incidence, Latency, and Survival of Cancer After World Trade Center Exposure -- Implementing a Large Epidemiologic Study Involving Many Data Sources—✦Charles B Hall, Albert Einstein College of Medicine; Rachel Zeig-Owens, Albert Einstein College of Medicine; Amy R. Kahn, Bureau of Cancer Epidemiology, New York State Department of Health; James Cone, World Trade Center Health Registry, New York City Department of Health and Mental Hygiene; Jiehui Li, World Trade Center Health Registry, New York City Department of Health and Mental Hygiene; Mark Farfel, World Trade Center Health Registry, New York City Department of Health and Mental Hygiene; Robert Brackbill, World Trade Center Health Registry, New York City Department of Health and Mental Hygiene; Paolo Boffetta, Icahn School of Medicine at Mount Sinai

9:45 a.m. Estimation of Outcome Trajectory Using Inverse Probability of Censoring Weighting When Data Are Missing Not at Random—✦Dustin Rabideau, Harvard T.H. Chan School of Public Health; Constantin T. Yiannoutsos, Indiana University Fairbanks School of Public Health; Ronald J. Bosch, Center for Biostatistics in AIDS Research, Harvard T.H. Chan School of Public Health; Judith Lok, Harvard T.H. Chan School of Public Health

9:50 a.m. Impact of Distance Calculation Methods on Geospatial Analysis of Healthcare Access—✦Sarah Lotspeich, Vanderbilt University; Robert E. Johnson, Vanderbilt University

9:55 a.m. Creating a Composite Score for Physical Activity Using Shape Constrained Additive Model—✦Eli Kravitz, Texas A&M Statistics; Raymond J. Carroll, Texas A & M University; Sarah Keadle, California Polytechnic State University

10:00 a.m. Supervised Robust Profile Clustering—✦Briana Stephenson, University of North Carolina at Chapel Hill; Amy H Herring, Duke University Statistical Science; Andrew Olshan, University of North Carolina at Chapel Hill

10:05 a.m. On the Impact of Empty Clusters in Transgenerational Studies—✦Glen McGee, Harvard University; Marianthi-Anna Kioumourtzoglou, Columbia University; Marc Weisskopf, Harvard University; Sebastien Haneuse, Harvard T.H. Chan School of Public Health; Brent A. Coull, Harvard TH Chan School of Public Health

475 CC-West 208

SPEED: Predictive Analytics with Social/Behavioral Science Applications: Spatial Modeling, Education Assessment, Population Behavior, and the Use of Multiple Data Sources—Contributed

Social Statistics Section, Section on Statistics in Imaging, Survey Research Methods Section

Chair(s): Cami M. Fuglsby, South Dakota State University

8:35 a.m. Imputing Missing Data from Non-Consent to Record Linkage—✦Jonathan Gessendorfer, Institute for Employment Research; Jonas Beste, Institute for Employment Research; J˙rg Drechsler, Institute for Employment Research; Joseph Sakshaug, German Institute for Employment Research

8:40 a.m. Supplemental Nutrition Assistance Program (SNAP) Integrity Monitoring—✦Zhicong Zhao,

8:45 a.m. How to Implement Empirical Results of Complex Longitudinal Analysis Models into Microsimulation and Test the Sensitivity of Such Implementations—✦Dawid Bekalarczyk, ; Petra Stein, University of Duisburg-Essen

8:50 a.m. Estimating the Size of a Hidden Finite Set: Large-Sample Behavior of Estimators—✦Si Cheng, Yale School of Public Health; Daniel J. Eck, ; Forrest W Crawford, Yale School of Public Health

8:55 a.m. Spatial Proximity Between Bank Branch Closures and Openings: Where Are the New Underserved Banking Areas Located?—✦Anna Tranfaglia,

9:00 a.m. A Multidimensional Array Model for Religiosity—✦Guangyu Tong, Duke University

9:05 a.m. Challenges from Modeling Open Online Assessment Data—✦Yan Liu, The University of British Columbia; Henrike Besche, Harvard Medical School; Xingyu Zhang, The Hong Kong University of Science and Technology; Edward Kroc, The University of British Columbia; Melanie Stefan, Edinburgh Medical School; Johanna Gutlerner, Harvard Medical School; Chanmin Kim, Boston University School of Public Health

9:10 a.m. A Spatially Correlated Auto-Regressive Model for Count Data with Applications for Modeling Crime—✦Nicholas Clark, Iowa State University; Philip M Dixon, Iowa State University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

9:15 a.m. Matrix Linear Discriminant Analysis—✦Wei Hu, University of California, Irvine

9:20 a.m. Replicate Weights for Variance Estimation of Subnational Areas—✦Stephanie Zimmer, RTI International; Marcus Berzofsky, RTI International; Andrew Moore, RTI International

9:30 a.m. Model-Based Socio-Economic Health Measures Using Causal Modeling—✦F. Swen Kuh, Australian National University; Anton H. Westveld, Australian National University; Grace S Chiu, Australian National University

9:35 a.m. A Monte Carlo Simulation of the Effects of Ignoring Measurement Non-Invariance on the Standard Error for Mean Difference Testing—✦Scott Colwell, University of Guelph; Theodore J Noseworthy, York University

9:40 a.m. An Algebraic Approach to Categorical Data Fusion for Population Size Estimation—✦Ann Johnston, Penn State University; Aleksandra Slavkovic, Pennsylvania State University

9:45 a.m. WORKING LIFE EXPECTANCY of MAJOR LEAGUE PITCHERS and FORECASTING the NUMBER of THEM: TASKS MADE EASY by USING the COHORT CHANGE RATIO METHOD—✦David Swanson, University of California Riverside; Jeff Tayman, University of California San Diego; Lucky Tedrow, Western Washington University; Jack Baker, Health Fitness Corporation

9:50 a.m. Modeling Person-Specific Development of Math Skills in Continuous Time—✦Lu Ou, ACTNext by ACT

9:55 a.m. Spatial Autocorrelation and Schelling Models of Residential Segregation—✦Terrence Gilchrist, Columbia University

10:00 a.m. Changing Trends in Legal Immigration - a Study of New U.S. Persons' Settling Pattern in Metropolitan Areas—Jiashen You, Office of Immigration Statistics, DHS

10:05 a.m. Path Analysis of Personality and Physiologic Pathways in Muscle Strength Decline—✦An-Lin Cheng, University of Missouri, Kansas City, School of Medicine

10:10 a.m. Gaussian Variational Estimation for Multidimensional Item Response Theory—✦April Eun Cho, University of Michigan; Gongjun Xu, University of Michigan

10:15 a.m. Collaborative Problem Solving Education in Global Perspective: The Evidence from PISA—✦Mack Shelley, Iowa State University; Senay Purzer, Purdue University

476 CC-West 212

SPEED: Clinical Trial Design, Longitudinal Analysis, and Other Topics in Biopharmaceutical Statistics—Contributed

Biopharmaceutical Section

Chair(s): Mingbin Feng, University of Waterloo

8:35 a.m. A Stagewise Prognostic Control Predictive Approach (SPCPA) for Subgroup Identification and Its Application in a Phase II Study—✦Wanying Li, Gilead Sciences; Wangshu Zhang, Gilead Sciences; Lovely Goyal, Gilead Sciences; Yuanyuan Xiao, Gilead Sciences

8:40 a.m. A Novel Blind Start Study Design to Investigate Vestronidase Alfa for Mucopolysaccharidosis VII, an Ultra-Rare Genetic Disease—✦Wenjie Song, Ultragenyx Pharmaceutical Inc; Chao-Yin Chen, Ultragenyx Pharmaceutical Inc; Christine Haller, Ultragenyx Pharmaceutical Inc; Emil Kakkis, Ultragenyx Pharmaceutical Inc

8:45 a.m. Statistical Models for Longitudinal Analysis of Preclinical Efficacy Screens—✦William Forrest, Genentech, Inc; Bruno Alicke, Genentech; Oleg Mayba, Genentech; Alice Starr, Genentech

8:50 a.m. Treatment Effect Estimation in Subgroups: a Comparative Study—✦Weihua Cao, Novartis Pharmaceutical Corp; Bjoern Holzhauer, Novartis Pharma AG; Steffen Ballerstedt, Novartis Pharma AG; Dong Xi, Novartis Pharmaceuticals; Ieuan Jones, Novartis Pharma AG

8:55 a.m. Sample Size Formulae and Application for the Two-Stage Continual Reassessment Method (CRM)—✦Cody Chiuzan, Columbia University; Ying Kuen Ken Cheung, Columbia University; Zilan Chai, Columbia University

9:00 a.m. Single Item Analysis of Patient Reported Outcome Measures in a Phase III Randomized Controlled Trial—✦Stacie Hudgens, Clinical Outcome Solutions; Lysbeth Floden, Clinical Outcome Solutions

9:05 a.m. Longitudinal Dose-Response Surface to Handle Non-Monotone Continuous Outcomes—✦Ran Duan, Eli Lilly and Company; Yongming Qu, Eli Lilly and Company; Pandurang Kulkarni, Eli Lilly & Company

9:10 a.m. Incorporating Intermediate Binary Responses into Interim Analysis of a Long-Term Binary Endpoint—Jingjing Chen, Takeda Pharmaceuticals; ✦Tina Liu, Takeda Pharmaceuticals; Cong Han, Takeda Pharmaceuticals; Xiaopan Yao, Takeda Pharmaceuticals

9:15 a.m. MMRM Estimates Consideration for Longitudinal Data in Clinical Trials—Zheng (Jason) Yuan, Vertex Pharmaceuticals; ✦Yaohua Zhang, Vertex Pharmaceuticals; Chenkun Wang, Vertex Pharmaceuticals; Bingming Yi, Vertex Pharmaceuticals

9:20 a.m. Further Extensions of the Two-Stage Randomized Trial Design for Testing Treatment, Self-Selection and Treatment Preference Effects to Include Count Outcomes—✦Denise Esserman, Yale University; Yu Shi, Yale University

9:30 a.m. Sample Size Estimation for Stratified Cluster Randomized Trials with Binary Outcomes—✦Lee Kennedy-Shaffer, Harvard University; Michael David Hughes, Harvard University

9:35 a.m. Estimation of Peak Expiratory Flow Under Stochastic Differential Equations—✦Shan Yang, Merck & Co Inc

9:40 a.m. A Novel Confidence Interval for a Single Proportion in the Presence of Clustered Binary Outcome Data—✦Meghan Short, Boston University School of Public Health; Joseph M. Massaro, Boston University

9:45 a.m. Analysis of Multiple Thresholds in a Responder Analysis of Patient Reported Outcome Measures—✦Lysbeth Floden, Clinical Outcome Solutions; Melanie L Bell, University of Arizona; Stacie Hudgens, Clinical Outcome Solutions

9:50 a.m. A Two-Stage, Phase II Clinical Trial Design with Nested Criteria for Early Stopping and Efficacy: Expected Trial Duration and Tools for Planning—✦Michelle DeVeaux, Regeneron Pharmaceuticals; Michael John Kane, Yale University; Daniel Zelterman, Yale University

9:55 a.m. Assessing MCP-Mod Relative to Pairwise Comparisons and Trend Tests in Dose-Ranging Design and Analysis—✦Anran Wang, Merck & Co Inc; Fang Liu, Merck & Co., Inc; Sammy Yuan, Merck; Man (Mandy) Jin, Merck & Co., Inc.; Meihua Wang, Merck & Co.; Akshita Chawla, Merck & Co Inc; Pranab Kumar Mitra, Merck & Co Inc; Robin Mogg, Merck Research Laboratories

10:00 a.m. Exposure-Response Analysis with Random Forest—✦Zifang Guo, Merck; Thomas Jemielita, Merck & Co.; John Kang, Merck

10:05 a.m. Statistical Considerations of Single Pivotal Vs Two Replicated Confirmatory Studies—✦Zijiang Yang, Janssen R&D

10:10 a.m. Reducing the Effects of Misclassification in Sequential Multiple Assignment Randomized Trials (SMART)—✦Jun He, Virginia Commonwealth University; Donna McClish, Virginia Commonwealth University; Roy T Sabo, Virginia Commonwealth University

477 CC-West 213

SPEED: Bayesian Methods and Applications in the Life and Social Sciences—Contributed

Section on Bayesian Statistical Science, ENAR

Chair(s): Leontine Alkema, University of Massachusetts Amherst

8:35 a.m. Simulation-Based Bayesian Optimal Design for Ice Sheet Borehole Experiments—✦Xun Huan, Sandia National Labs/California; Andrew D. Davis, Massachusetts Institute of Technology

8:40 a.m. A Bayesian Meta-Analysis to Adjust Diagnostics Tests for Trend Analysis of Clostridium Difficile Infection in the Emerging Infections Program, U. S—✦Yi Mu, Centers for Disease Control and Prevention

8:45 a.m. Blocking Collapsed Gibbs Sampler for Latent Dirichlet Allocation Models—✦Xin Zhang, Pfizer (China) Research and Development Co., Ltd.; Scott Sisson, University of New South Wales

8:50 a.m. Dirichlet Process Clustering for the Prediction of Housing Prices—✦Matt Slifko, Virginia Tech; Scotland Leman, Virginia Tech; David Bieri, Virginia Tech

8:55 a.m. A Novel Bayesian PK/PD Model for Synergy: Challenges and Opportunities for Sequential Knowledge Integration—✦Fabiola La Gamba, ; Tom Jacobs, Janssen R&D; Helena Geys, Janssen R&D; Christel Faes, Hasselt University

9:00 a.m. A Multivariate Probit Model for Learning Trajectories with Application to Classroom Assessment—✦Yinghan Chen, University of Nevada, Reno; Steven Culpepper, University of Illinois at Urbana-Champaign

9:05 a.m. Identifying and Clustering Stable and Dynamic CpG Sites via Bayesian Analysis—✦Luhang Han, University of Memphis; Hongmei Zhang, University of Memphis; Ebenezer Olusegun George, University of Memphis; Wilfried Karmaus, University of Memphis; Hasan Arshad , University of Southampton; John Holloway, University of Southampton

9:10 a.m. Bayesian Spatial Quantile Regression for Areal Count Data, with Application on Substitute Care Placements in Texas—✦Clay King, Colorado Mesa University; Joon Jin Song, Baylor University

9:15 a.m. Variable Selection and Cluster Identification Using Mixture of Regression Trees—✦Emanuele Mazzola, Dana-Farber Cancer Institute; Mahlet Tadesse, Georgetown University; Giovanni Parmigiani , Harvard T.H. Chan School of Public Health / Dana-Farber Cancer Institute

9:20 a.m. Calibrating a Stochastic Agent Based Model Using Quantile-Based Emulation—✦Arindam Fadikar, Virginia Tech; David Higdon, Virginia Tech

9:30 a.m. Bayesian Non-Negative Matrix Factorization for Analyzing Co-Location Networks—✦Wenna Xi, The Ohio State University; Catherine Calder, The Ohio State University; Christopher Browning, The Ohio State University

9:35 a.m. Bayesian High-Dimensional Multi-Outcome Regression with Tree-Structured Shrinkage—✦Emma Grace Thomas, Harvard T.H. Chan School of Public Health; Francesca Dominici, Harvard T. H. Chan School of Public Health; Giovanni Parmigiani , Harvard T.H. Chan School of Public Health / Dana-Farber Cancer Institute; Lorenzo Trippa, Harvard

9:40 a.m. A Variational Bayes Approach to Clustered Latent Preference Models for Directed Network Data—✦Jaron Lee, Australian National University

9:45 a.m. Bayesian Adaptive Design of Phase 2 Dose-Finding Study—✦Tanya Granston, CTI BioPharma Corp.; Huafeng Zhou, CTI BioPharma Corp.; Lixia Wang, CTI BioPharma Corp.

9:50 a.m. Bayesian Analysis of High-Dimensional Point Pattern Data Sets Using Latent Multivariate Log-Gamma Random Vectors—✦Heli Gao, Florida State University

9:55 a.m. One Direction? On the Modeling of Circular Data Using Projected Normal Distributions—✦Jolien Cremers, Utrecht University; Irene Klugkist, Utrecht University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

10:00 a.m. A Bayesian Shape Invariant Growth Model to Evaluate the Effect of Stimulant Medication on Growth of Children with ADHD—✦Mohammad Bhuiyan, University of Cincinnati; Heidi Sucharew, Cincinnati children's Hospital and Medical Center; Md Monir Hossain, Cincinnati Children's Hospital and Medical Center

10:05 a.m. Bayesian Analysis of Unrelated Question Design for Correlated Sensitive Questions from Small Areas—✦Yuan Yu,

10:10 a.m. An Empirical Bayes Method to Estimate Interaction Intensities and Identify Long-Range Chromosomal Interactions Based on Hi-C Data—✦Zheng Xu, University of Nebraska-Lincoln; Qi Zhang, University of Nebraska-Lincoln

Contributed Sessions 8:30 a.m.—10:20 a.m.

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■ Missing Data—Contributed

Biometrics Section

Chair(s): Jiawei Bai, Johns Hopkins University

8:35 a.m. Model Compatible Multiple Imputation Method for Minimizing the Impact of Covariate Detection Limit in Logistic Regression—✦Shahadut Hossain, UAE University

8:50 a.m. Imputed Factor Regression for High-Dimensional Block-Wise Missing Data—✦Yanqing Zhang, Yunnan University; Niansheng Tang, Yunnan University; Annie Qu, University of Illinois at Urbana-Champaign

9:05 a.m. A Semiparametric Test of Missing at Random Using Instrumental Variables—✦Rui Duan, University of Pennsylvania; Jason Liang, National Institute of Allergy and Infectious Diseases; Cheng Yong Tang, Temple University; Yong Chen, University of Pennsylvania

9:20 a.m. Different Causes of Missing Values in a Randomized Clinical Trial of Kidney Decline: Implications for the Statistical Analysis Plan—✦Andrzej Galecki, University of Michigan; Cathie Spino, University of Michigan; Alessandro Doria, Joslin Diabetes Center; Michael Mauer, University of Minnesota

9:35 a.m. A Comparison of Multiple Imputation by Fully Conditional Specification and Joint Modeling for Generalized Linear Models with Covariates Subject to Detection Limits—✦Paul Bernhardt, Villanova University

9:50 a.m. Missing Imputation of Cancer Proteome with Iterative Prediction Model—✦Shrabanti Chowdhury, Icahn School of Medicine at Mount Sinai; Weiping Ma, Icahn School of Medicine at Mount Sinai; Pei Wang, Icahn School of Medicine at Mount Sinai ; Lin Chen, University of Chicago

10:05 a.m. Addressing Missing Accelerometer Data with Functional Data Analysis (FDA)—✦Patrick Hilden, ; Joseph Schwartz, Columbia University; Jeff Goldsmith, Columbia University

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■ Survival Analysis II—Contributed

Biometrics Section

Chair(s): Bo Fu, Astellas Pharma Inc.

8:35 a.m. Cox Regression Model Under Dependent Truncation with Applications to Studies of Neurodegenerative Diseases—✦Lior Rennert, University of Pennsylvania; Sharon X Xie, University of Pennsylvania

8:50 a.m. Incorporating Intermediary Information in Cox Models of Randomized Clinical Trials: The Information Balanced Intermediary Cox Model—✦James Troendle, National Institutes of Health; Eric Leifer, National Heart, Lung, and Blood Institute; Lauren Kunz, National Heart, Lung, and Blood Institute; Song Yang, NHLBI/NIH

9:05 a.m. Semiparametric Estimation of the Cure Fraction in Population-Based Cancer Survival Analysis—✦Ennan Gu, University of South Carolina; Jiajia Zhang, University of South Carolina

9:20 a.m. Estimating Personal Cure in Colorectal Cancer Patients Using the SEER Data—✦Margaret Stedman, Stanford Univ

9:35 a.m. Weighted Log-Rank Test for Time-To-Event Data in Immunotherapy Trials with Random Delayed Treatment Effect and Cure Rate—✦Shufang Liu, Astellas Pharma; Chenghao Chu, Indiana University, Fairbanks School of Public Health; Alan Rong, Data Science, Astellas Pharma Inc.

9:50 a.m. Genome-Wide Gaussian Process Regression for Survival Time Prediction—✦Aaron J. Molstad, Fred Hutchinson Cancer Research Center; Wei Sun, Fred Hutchinson Cancer Research Center; Li Hsu, Fred Hutchinson Cancer Research Center, USA

10:05 a.m. Future Events Prediction with a Forward Intensity Function Approach—✦Lili Zhu, Bristol-Myers Squibb; Temple University; Cheng Yong Tang, Temple University

480 CC-West 221

Model Testing and Prediction—Contributed

Business and Economic Statistics Section

Chair(s): Craig Rolling, Saint Louis University

8:35 a.m. Economic Models with Non-Euclidean Data—✦Suyong Song, University of Iowa; Stephen Baek, University of Iowa

8:50 a.m. Asymmetric AdaBoost for High-Dimensional Maximum Score Regression—✦Tae-Hwy Lee, Univ of California, Riverside; Jianghao Chu, University of California, Riverside; Aman Ullah, University of California, Riverside

9:05 a.m. Large-Scale Statistical Forecasting at Target Corporation—✦Phillip Yelland, Target Corporation

9:20 a.m. Quantile Regression for AB Testing—✦Luke Smith, Amazon

9:35 a.m. Partially Specified Spatial Autoregressive Model with Artificial Neural Network—✦Wenqian Wang, Northwestern University; Beth Andrews, Northwestern University

9:50 a.m. Statistical Analysis of Housing Prices in Georgia—✦Mitra Devkota,

10:05 a.m. Applied Behavioral Finance: Testing 'susceptibility to Predatory Lending' as an Explanation for Longstanding Puzzles in Loan Performance Data—✦George Cave, Summit Consulting, LLC

481 CC-West 223

■ ● Modeling, Analysis, and Assessment—Contributed

Quality and Productivity Section, Section on Physical and Engineering Sciences

Chair(s): Xiaoxia Han, Henry Ford Health System

8:35 a.m. Prediction of Warranty Returns Based on Modeling Seasonal Recurrent Event Data—✦Qianqian Shan, ; William Meeker, Iowa State University

8:50 a.m. A Simulation Study of Process Capability Analysis on Processes with Multiple Normal Distributions—✦Laura Lancaster, SAS Institute Inc.

9:05 a.m. Factor Selection and Level Grouping with Applications to Golden Path Determination—✦Nan-Jung Hsu, National Tsing Hua University

9:20 a.m. Looking Inward: Quality Audits for Demographic Programs at the U.S. Census Bureau—✦Cynthia A Rothhaas, U.S. Census Bureau; Richard Levy, U.S. Census Bureau

9:35 a.m. A Reflection of the Statistical Assessment for Analytical Similarity and Beyond ----Are We Addressing the Right Question?—✦Aili Cheng, Pfizer

9:50 a.m. Bayesian Framework for Tier 1 Analytical Biosimilarity Assessment—✦Yanbing Zheng, AbbVie; Hesham Fahmy, AbbVie

10:05 a.m. Statistical Analysis of the Sliding Window Fourier Transform—✦Lee Richardson, Carnegie Mellon University

482 CC-West 114

Causal Inference and Related Methods—Contributed

Section on Statistics in Epidemiology

Chair(s): Breda Munoz, RTI International

8:35 a.m. A Nonparametric Estimator for the Probability of Causation—✦Maria Cuellar, Carnegie Mellon University; Edward Kennedy, Carnegie Mellon University

8:50 a.m. A Powerful Approach to the Study of Moderate Effect Modification in Observational Studies—✦Kwonsang Lee, Harvard University; Dylan Small, University of Pennsylvania; Paul Rosenbaum, University of Pennsylvania

9:05 a.m. Multiply Imputing Missing Values Arising by Design in Transplant Survival Data—✦Robin Mitra, University of Lancaster

9:20 a.m. Can We Train Machine Learning Methods to Outperform the High-Dimensional Propensity Score Algorithm?—✦Mohammad Ehsanul Karim, University of British Columbia; Robert W Platt, McGill University

9:35 a.m. EXTENDED SENSITIVITY ANALYSIS for HETEROGENEOUS UNMEASURED CONFOUNDING with an APPLICATION to SIBLING STUDIES of RETURNS to EDUCATION—✦Raiden Hasegawa, The Wharton School, University of Pennsylvania; Colin Fogarty, Massachusetts Institute of Technology

9:50 a.m. When Confounders Are Confounded: Naive Benchmarking in Sensitivity Analysis—✦Carlos Leonardo Kulnig Cinelli, UCLA; Judea Pearl, UCLA; Bryant Chen, IBM

10:05 a.m. Principal Stratification for Longitudinal Data in Environmental Trials—✦Joshua Keller, Johns Hopkins Bloomberg School of Public Health; Roger D Peng, Johns Hopkins University

483 CC-West 115

● Multiplicity—Contributed

Biopharmaceutical Section

Chair(s): LingLing Han,

8:35 a.m. Hochberg Procedure Under Multivariate Normal Distribution with Some Negative Correlations—✦Jiangtao Gou, Fox Chase Cancer Center, Temple University Health System

8:50 a.m. General Covering Principle: a New Approach to Address Multiplicity in Hypothesis Testing—✦Huajiang Li, Avanir Pharmaceuticals; Hong Zhou, Arkansas State University

9:05 a.m. Considerations on MCPMod-Type Methods for Proof of Concept in Multi-Armed Studies—✦Tobias Mielke, Janssen-Cilag GmbH

9:20 a.m. Multiplicity for a Group Sequential Trial with Biomarker Subpopulations—✦Jing Zhao, Merck

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

9:35 a.m. Controlling the Family-Wise Type I Error Rate in a Phase II POC Trial of the Merck Pneumococcal Vaccine Program: An Application of the Hochberg Approach—✦Jianing Li, Merck Research Lab

9:50 a.m. Improving the Dunnett Test for Discrete Data—✦Li He, Merck Research Laboratories; Joseph F. Heyse, Merck Research Laboratories

10:05 a.m. Composite Endpoints in Clinical Trials with Multiple Correlated Dichotomous Outcomes—✦Boris Zaslavsky, FDA/CBER

484 CC-West 121

● Clinical Trial Design- 5—Contributed

Biopharmaceutical Section

Chair(s): Jane Qian, Abbvie

8:35 a.m. Moving Beyond Longrank/Hazard Ratio Test/Estimation Approach in Cancer Clinical Trials—✦Hajime Uno, Dana Farber Cancer Institute; Miki Horiguchi, Kitasato University

8:50 a.m. Sample Size Allocation in Multi-Regional Equivalence Studies—✦Jason Liao, Merck & Co. Inc.; Ziyi Yu, Jazz Pharmaceuticals Inc; Yulan Li, Myovant Sciences

9:05 a.m. BLINDED SAMPLE SIZE RE-ESTIMATION—✦Chien-Hua Wu, Chung-Yuan Christian University; Shu-Mei Wan, Lunghwa University of Science and Technology

9:20 a.m. A Model-Based Approach for Simulating Adaptive Clinical Studies with Surrogate Endpoints Used for Interim Decision-Making—✦Xiaotian Chen, AbbVie; Alan Hartford, AbbVie Inc; Mei Li, AbbVie; Jun Zhao, AbbVie

9:35 a.m. A Curtailed Two-Stage Selection and Testing Procedure for Comparative Clinical Trials—✦Mingyue Wang, Syracuse University; Pinyuen Chen, Syracuse University

9:50 a.m. Longitudinal Parametric Dose-Response Surface Model Assisted Early Phase Study Design—✦Yongming Qu, Eli Lilly and Company

10:05 a.m. Assessment of Treatment Effect on Overall Survival in the Presence of Treatment Switching: a Bridging Approach Across Various Modeling Methods—✦Yiyun Tang, Pfizer, Inc.; Selaru Paulina, Pfizer Inc.; Xin Huang, Pfizer Inc.

485 CC-East 19

Bayesian Latent Variable Methods for Life Sciences—Contributed

Section on Bayesian Statistical Science

Chair(s): Dilli Bhatta, University of South Carolina Upstate

8:35 a.m. Bayesian Latent Class Models for Identifying Biomarkers in Circadian Patterns—✦Sung Duk Kim, National Cancer Institute; Paul S Albert, National Cancer Institute

8:50 a.m. Generalized Bayesian Factor Analysis for Integrative Clustering with Application to Multi-Modal Omics Data—✦Eun Jeong Min, University of Pennsylvania; Changgee Chang, University of Pennsylvania; Qi Long, University of Pennsylvania

9:05 a.m. A Latent Bayesian Classification Model to Predict Kidney Obstruction Based on Renography and Expert Ratings—✦Changgee Chang, University of Pennsylvania; Jeong Hoon Jang, Emory University; Amita Manatunga, Emory University; Qi Long, University of Pennsylvania

9:20 a.m. Bayesian Spatial Clustering Method and Its Application in Radiology—✦Song Zhang, University of Texas Southwestern Medical Center

9:35 a.m. A Bayesian Hierarchical Change Point Model with Parameter Constraints—✦Hong Li, Medical University of South Carolina; Brian Neelon, Medical University of South Carolina

9:50 a.m. A Nonparametric Bayesian Model for Single-Cell Variant Calling—✦Patrick Flaherty, University of Massachusetts, Amherst

10:05 a.m. Efficient MCMC for Spatial Population Modeling—✦Daniel B. Turek, Williams College

486 CC-West 219

Computing Kaleidoscope—Contributed

Section on Statistical Computing

Chair(s): Jianfeng Ding, SAS Institute

8:35 a.m. A Transformation-Based K-Means Algorithm for Skewed Data—✦Nicholas S Berry, Iowa State University; Ranjan Maitra, Iowa State University

8:50 a.m. A Sequential Boothstrap/Resampling Method—✦Silvia Sharna, Ball State University; Mian Adnan, Indiana University Bloomington

9:05 a.m. Mixtures of Poisson Regressions with Measurement Errors—✦Xiaoqiong Fang, ; Derek S. Young, University of Kentucky

9:20 a.m. Exact Solutions to Linear Systems Using Rational Arithmetic and Conversions—✦Timothy Hall, PQI Consulting

9:35 a.m. On Consistency and Limitation of Parametric and Non-Parametric Paired Sample Tests—✦Tanweer Shapla, Eastern Michigan University; Khairul Islam, Eastern Michigan University

9:50 a.m. Nearly Best Confidence Intervals—✦George Terrell, VA Poly. Inst. & State Univ.

10:05 a.m. PROFILE MM ALGORITHMS for GAMMA FRAILTY MODELS—✦Xifen Huang, University of Hong Kong; jinfeng Xu, The University of Hong Kong

487 CC-West 217

Neural Networks, Deep Learning, and RKHS—Contributed

Section on Statistical Learning and Data Science

Chair(s): Hokwon Cho, University of Nevada, Las Vegas

8:35 a.m. Reproducing Kernels for Pairwise Learning—✦Xin Guo, The Hong Kong Polytechnic University; Ting Hu, Wuhan University; Qiang Wu, Middle Tennessee State University; Ding-Xuan Zhou, City University of Hong Kong

8:50 a.m. Posterior Impropriety of Some Sparse Bayesian Learning Models—✦Anand Dixit, Iowa State University; Vivekananda Roy, Iowa State University

9:05 a.m. Folded Concave Penalized Estimation of Conditional Copula Graphical Models with Application to Microbial Networks—✦Bingyuan Liu, Pennsylvania State University; Lingzhou Xue, Penn State University and National Institute of Statistical Sciences

9:20 a.m. Deep Learning in Medical Imaging: Evaluation and Study Design—✦Robyn Ball, Stanford University; David Larson, Stanford University; Pranav Rajpurkar, Stanford University; Matthew Chen, Nines AI; Jeremy Irvin, Stanford University; Jaden Yang, Stanford University; Matthew P Lungren, Stanford University

9:35 a.m. Heterogeneous Treatment Effect Estimation in Randomize Experiments: From the Perspective of Machine Learning—✦Ran Chen, Wharton; Hanzhong Liu, Center for Statistical Science, Tsinghua University

9:50 a.m. A Simulation Study on the Performance of Deep Learning Methods for Multi-Category Classification—✦Dawei Liu, Biogen; Ih Chang, Biogen

10:05 a.m. Neural Network with Spline Smoothing and Its Applications to Genetics—✦Pei Geng, Illinois State University; Shan Zhang, Michigan State University; Qing Lu, Michigan State University

488 CC-West 218

Nonstationary and Anisotropic Spatial Processes—Contributed

Section on Statistics and the Environment

Chair(s): Mark Risser, Lawrence Berkeley National Laboratory

8:35 a.m. Approximate Bayesian Inference for Big Spatial Data Using Non-Stationary Spectral Simulation—✦Hou-Cheng Yang, King Abdullah University of Science and Technology (KAUST); Ying Sun, KAUST; Sebastian Kurtek, The Ohio State University

8:50 a.m. Flexible Characterizations of Nonstationary Space-Time Covariance Functions—✦Christopher J Geoga, Argonne National Laboratory; Charlotte Haley, Argonne National Lab; Michael Stein, University of Chicago, Dept. of Statistics; Mihai Anitescu, Argonne National Laboratory

9:05 a.m. Estimation of Spatial Deformation for Nonstationary Processes via Variogram Alignment—✦Ghulam Qadir,

9:20 a.m. Exploring Departures from Stationarity Using Locally Stationary Time Series—✦Shreyan Ganguly, The Ohio State University; Peter Craigmile, The Ohio State University

9:35 a.m. Bayesian Inference for Geometrically Anisotropic Spatial Random Fields on Regular Lattice—✦Fan Dai, ; Somak Dutta, Iowa State University

9:50 a.m. Nonstationary Flood Frequency Analysis: a Mixed and Pooled Approach—✦Philip Yates, DePaul University; John Grego, University of South Carolina

10:05 a.m. Examining Non-Stationarity in Spatial Processes via an M-RA and Mixture Priors—✦Veronica J. Berrocal, University of Michigan

489 CC-West 112

Methods Development for Mediation and Interaction in Post-GWAS Data—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Wenyi Wang, MD Anderson Cancer Center

8:35 a.m. Improved Variance Component Score Tests of Gene-Environment Interactions—✦NANXUN MA, University of Washington; Michael C. Wu, Fred Hutchinson Cancer Research Center; Jing Ma, Fred Hutch Cancer Research Center

8:50 a.m. Pleiotropy Informed Adaptive Association Test of Multiple Traits Using GWAS Summary Data—✦Maria Masotti, University of Minnesota ; Baolin Wu, University of Minnesota ; Bin Guo, University of Minnesota

9:05 a.m. A Unified Framework to Perform Inference for Pleiotropy, Mediation, and Replication in Genetic Association Studies—✦Ryan Sun, Harvard University; Xihong Lin, Harvard University

9:20 a.m. A Functional Neural Network for Genetic Data Analysis Involving High-Dimensional Multivariate Outcomes—✦Shan Zhang, Michigan State University; Xiaoxi Shen, ; Xiaoran Tong, Michigan State University; Qing Lu, Michigan State University

9:35 a.m. A New Kernel-Based Method for Multiple-Loci Meta-Analysis—✦Xiaoran Tong, Michigan State University; Qing Lu, Michigan State University; Xiaoxi Shen,

9:50 a.m. Proper Conditional Analysis in the Presence of Missing Data Identified Novel Independently Associated Low Frequency Variants in Nicotine Dependence Genes—✦Yu Jiang, ; Dajiang Liu, Penn State College of Medicine

10:05 a.m. A Functional Proportional Hazards Model for Investigating the Gene-Environment Interaction Effects on Survival—✦Li Luo, University of New Mexico

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

490 CC-West 111

Advances in Methods for the Accurate Measurement of High-Throughput Sequencing Data—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Yinqiu He, University of Michigan

8:35 a.m. Joint Modeling of Multiple RNA-Seq Samples for Accurate Isoform Quantification—✦Wei Li, University of California, Los Angeles; Jingyi Li, University of California, Los Angeles; Anqi Zhao, Harvard University; Shihua Zhang, Chinese Academy of Sciences

8:50 a.m. Accounting for Gene Expression Quantification Uncertainty Leads to Improved Performance in Differential Splicing Analysis—✦Scott Van Buren, University of North Carolina at Chapel Hill; Naim Rashid, UNC Chapel Hill

9:05 a.m. Improving Copy Number Variation Estimation by Incorporating BAF Using ModSaRa—✦Feifei Xiao, University of South Carolina; Heping Zhang, Yale University School of Public Health

9:20 a.m. Mitigating the Adverse Impact of Batch Effects in Sample Pattern Detection—✦Teng Fei, Emory University; Tengjiao Zhang, School of Life Sciences and Technology, Tongji University; Weiyang Shi, School of Life Sciences and Technology, Tongji University; Tianwei Yu, Emory University

9:35 a.m. Normalization of Transcript Degradation Improves Accuracy in RNA-Seq Analysis—✦Ji-Ping Wang, Northwestern University; Bin Xiong, Northwestern University; Yiben Yang, Northwestern University

9:50 a.m. RCRnorm: An Integrated System of Random-Coefficient Hierarchical Regression Models for Normalizing NanoString NCounter Data from FFPE Samples—Gaoxiang Jia, Southern Methodist University; Guanghua Xiao, The University of Texas Southwestern Medical Center; ✦Xinlei (Sherry) Wang, Southern Methodist University

10:05 a.m. Vi-HMM: a Novel HMM-Based Method for Sequence Variant Identification in Short Read Data—✦Man Tang, Virginia Tech; Mohammad Shabbir Hasan, Virginia Tech; Liqing Zhang, Virginia Tech; Hongxiao Zhu, Virginia Tech University; Xiaowei Wu, Virginia Tech

WEDNESDAY

Invited Sessions 10:30 a.m.—12:20 p.m.

491 CC-West 213

■ ● Causal Inference Within Reach: Pragmatic Approaches to Model Construction and Validation—Invited

Health Policy Statistics Section, Social Statistics Section, Biometrics Section, Mental Health Statistics Section

Organizer(s): Booil Jo, Stanford University

Chair(s): Elizabeth A Stuart, Johns Hopkins Bloomberg School of Public Health

10:35 a.m. Matching Methods for Causal Inference with Time-Series Cross-Section Data—✦Kosuke Imai, Princeton University; Erik Wang, Princeton University; In Song Kim, MIT

10:55 a.m. Weighting-Based Sensitivity Analysis in Causal Mediation Studies: Interactive Tools for Analysts—✦Guanglei Hong, University of Chicago; Xu Qin, University of Chicago; Fan Yang, University of Colorado Denver

11:15 a.m. Model Assessment in Causal Inference Using Explicit Validators—✦Booil Jo, Stanford University

11:35 a.m. Disc: Tyler VanderWeele, Harvard University

11:55 a.m. Disc: Xiao-Li Meng, Harvard University

12:15 p.m. Floor Discussion

492 CC-West 222

■ ● Recent Advances in Modeling Complex Dependent Data—Invited

Business and Economic Statistics Section, IMS, Society for Risk Analysis, SSC

Organizer(s): Scott H. Holan, University of Missouri/U.S. Census Bureau

Chair(s): Scott H. Holan, University of Missouri/U.S. Census Bureau

10:35 a.m. Count Time Series Models Based on Expectation Thinning Operators—✦Harry Joe, University of British Columbia

11:00 a.m. Spatio-Temporal Modeling of Heavy-Tailed Data via Non-Gaussian Latent Processes—✦Gabriel Huerta, University of New Mexico; Kellin Rumsey, University of New Mexico

11:25 a.m. Hierarchical Models with Conditionally Conjugate Full-Conditional Distributions for Dependent Data from the Natural Exponential Family—✦Jonathan R Bradley, Florida State University; Scott H. Holan, University of Missouri/U.S. Census Bureau; Christopher K. Wikle, University of Missouri

11:50 a.m. Robust Estimation for Some Preferential Attachment Models—✦Richard A. Davis, Columbia University; Phyllis Wan, Columbia University; Tiandong Wang, School of Operations Research and Information Engineering; Sidney I. Resnick, Cornell University

12:15 p.m. Floor Discussion

493 CC-West 306

New Statistical Methods for Lumber Analytics—Invited

SSC

Organizer(s): Jim Zidek, University of British Columbia

Chair(s): Jim Zidek, University of British Columbia

10:35 a.m. Semiparametric Monitoring Test Based on Clustered Data—✦Jiahua Chen, University of British Columbia; Pengfei Li, University of Waterloo; yukun liu, East China Normal University; Jim Zidek, University of British Columbia

11:00 a.m. Sparse Functional Partial Least Squares Method for Spectral Analysis—✦Jiguo Cao, Simon Fraser University; Tianyu Guan, Simon Fraser University; Kevin Groves, FPInnovation; Martin Feng, FPInnovation

11:25 a.m. Bayesian Parametric Models Without Likelihoods: Assessing Accumulated Damage in Forest Products—✦Samuel WK Wong, University of Florida; Jim Zidek, University of British Columbia; Chun-Hao Yang, University of Florida

11:50 a.m. Disc: Conroy Lum, FPInnovations

12:15 p.m. Floor Discussion

494 CC-West Ballroom A

■ Clinical Trial Design for Precision Oncology—Invited

ENAR, Biopharmaceutical Section, Biometrics Section, SSC

Organizer(s): Mithat Gonen, Memorial Sloan Kettering Cancer Center

Chair(s): Mithat Gonen, Memorial Sloan Kettering Cancer Center

10:35 a.m. Evaluating the Statistical Properties of Bayesian Basket Trial Designs—✦Kristen May Cunanan, Memorial Sloan Kettering Cancer Center; Alexia Iasonos, Memorial Sloan Kettering Cancer Center; Ronglai Shen, Memorial Sloan-Kettering Cancer Center; Colin B Begg, Memorial Sloan Kettering Cancer Center; Mithat Gonen, Memorial Sloan Kettering Cancer Center

11:05 a.m. Bayesian Uncertainty Directed Trial Designs—✦Lorenzo Trippa, Harvard

11:35 a.m. Disc: Gary Rosner, Johns Hopkins University

12:05 p.m. Floor Discussion

495 CC-West 224

■ ● The Potential for Web-Scraping in the Production of Official Statistics: An Opportunity for Statistics to Lead?—Invited

Government Statistics Section, Survey Research Methods Section, Section on Statistical Learning and Data Science, Social Statistics Section

Organizer(s): Linda J Young, USDA National Agricultural Statistics Service

Chair(s): Michael Hyman, USDA-NASS

10:35 a.m. Modernizing Census Bureau Economic Statistics Through Web Scraping—✦Brian Dumbacher, U.S. Census Bureau; Carma Ray Hogue, U.S. Census Bureau

11:00 a.m. The Potential for Web-Scraping in the Production of Official Statistics: An Opportunity for Statistics to Lead?—✦Linda J Young, USDA National Agricultural Statistics Service

11:25 a.m. Modernizing Government Statistics While Preserving Principles—Robert Sivinski, Office of Management and Budget; ✦Rochelle (Shelly) Wilkie Martinez, Office of Management and Budget

11:50 a.m. Floor Discussion

496 CC-West 215/216

■ ● Building a Computing Age #StatisticsCurriculum for Biomedical Scientists—Invited

Section on Teaching of Statistics in the Health Sciences, Section on Statistical Learning and Data Science, Section on Statistical Education

Organizer(s): Sujata M Patil, Memorial Sloan Kettering Cancer Center

Chair(s): Jaya M Satagopan, Memorial Sloan Kettering Cancer Center

10:35 a.m. A Guide to Teaching Data Science—✦Rafael Irizarry, Harvard University

10:55 a.m. Building and Teaching a Statistics Curriculum for Post-Doctoral Biomedical Scientists at a Free-Standing Cancer Center—✦Sujata M Patil, Memorial Sloan Kettering Cancer Center; Ushma Neill, Memorial Sloan Kettering Cancer Center; Jaya M Satagopan, Memorial Sloan Kettering Cancer Center

11:15 a.m. Experiences with Teaching Genomic Data Science Online—✦Kasper Daniel Hansen, Johns Hopkins University

11:35 a.m. Teaching Statistics to Basic Scientists: #KnowYourAudience—✦Stacey J Winham, Division of Biomedical Statistics and Informatics, Mayo Clinic; Natasa Milic, University of Belgrade; Tracey L Weissgerber, Division of Nephrology and Hypertension, Mayo Clinic

11:55 a.m. Disc: Naomi S Altman, Pennsylvania State University

12:15 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

497 CC-West 121

■ ● Cloud and Distributed Computing for Statisticians—Invited

Section on Statistical Computing, SSC

Organizer(s): Ryan Hafen, Hafen Consulting, LLC

Chair(s): Ryan Hafen, Hafen Consulting, LLC

10:35 a.m. The CloudyR Project: Statistical Cloud Computing in R with Amazon and Google—✦Thomas J. Leeper, London School of Economics

11:00 a.m. Azure Cloud Tools for Statisticians—✦Stephen F Elston, Quantia Analytics, LLC

11:25 a.m. Distributed Data Science with Sparklyr—✦Kevin Kuo, RStudio

11:50 a.m. Distributed Machine Learning with H2O—✦Navdeep Gill, H2O.ai

12:15 p.m. Floor Discussion

498 CC-West 122

Statistica Sinica Invited Papers Session—Invited

International Chinese Statistical Association

Organizer(s): Hans Mueller, UC Davis

Chair(s): Hans Mueller, UC Davis

10:35 a.m. Two-Sample Tests for High-Dimensional Linear Regression with an Application to Detecting Interactions—Tianxi Cai, Harvard T.H. Chan School of Public Health; ✦Yin Xia, Fudan University; Tianwen Cai, University of Pennsylvania

11:05 a.m. Variable Selection via Partial Correlation—✦Runze Li, Penn State University; Jingyuan Liu, Xiamen University; Lejie Lou, Ernst & Young

11:35 a.m. The GUIDE Approach to Missing Data—✦Wei-Yin Loh, University of Wisconsin

12:05 p.m. Floor Discussion

499 CC-West 211

Noether Award—Invited

Noether Award Committee

Organizer(s): Raymond J. Carroll, Texas A & M University

Chair(s): Raymond J. Carroll, Texas A & M University

10:35 a.m. Nonparametric: The Genesis of Machine Learning—✦Jianqing Fan, Princeton University

11:15 a.m. Bayesian Alpha-Posteriors and Alpha-Variational Bayes—✦Anirban Bhattacharya, Texas A&M University

11:55 a.m. Floor Discussion

500 CC-West 301

Sirken Award—Invited

Sirken Award, Survey Research Methods Section

Organizer(s): John Czajka, Mathematica Policy Research

Chair(s): John Czajka, Mathematica Policy Research

10:35 a.m. Predicting and Understanding Nonresponse in Surveys Using Revealed Preferences—✦Colm O'Muircheartaigh, NORC at the University of Chicago

11:35 a.m. Floor Discussion

501 CC-East 19

Advances in MCMC and Computational Statistics—Invited

International Society for Bayesian Analysis (ISBA)

Organizer(s): Mylene Bedard, University de Montreal

Chair(s): Jeffrey S Rosenthal, University of Toronto

10:35 a.m. Local Search for Optimality in RWM- and MALA-Within-Gibbs—✦Mylene Bedard, University de Montreal

11:05 a.m. Rapid and Torpid Mixing of Hamiltonian Monte Carlo—✦Aaron Smith, University of Ottawa

11:35 a.m. Dynamic Pricing and Matching in Ride-Sharing—✦Dawn Woodard, Uber

12:05 p.m. Floor Discussion

Invited Panels 10:30 a.m.—12:20 p.m.

502 CC-West 118

■ ● Choose Your Own Adventure: Next Steps in a Programming/Analysis Career—Invited

Section for Statistical Programmers and Analysts, Committee on Applied Statisticians, Stats. Partnerships Among Academe Indust. & Govt. Committee

Organizer(s): Michael Carniello, Astellas Pharma

Chair(s): Tim Hesterberg, Google

Panelists: ✦Hannah L Palac, AbbVie, Inc.

✦Jody Dyan Ciolino, Northwestern University

✦Jonathan Lisic, Cigna

12:10 p.m. Floor Discussion

503 CC-East 10

Applying Item Response Theory Models to Estimate Motor Carrier Safety—Invited

Transportation Statistics Interest Group, Section on Physical and Engineering Sciences, Section on Risk Analysis

Organizer(s): Mike L. Cohen, Committee on National Statistics

Chair(s): Carol A.C. Flannagan, University of Michigan, Transport Research Institute

Panelists: ✦Donald Hedeker, University of Chicago

✦Linda Ng Boyle, University of Washington

✦Joel Greenhouse, CMU

12:10 p.m. Floor Discussion

Topic Contributed Sessions 10:30 a.m.—12:20 p.m.

504 CC-West 110

■ Novel Dose-Finding Methods in the Development of Combination Therapies—Topic Contributed

Biometrics Section, Biopharmaceutical Section, ENAR

Organizer(s): Bo Huang, Pfizer Inc.

Chair(s): Jing Wang, Pfizer, Inc

10:35 a.m. Novel Model-Assisted Designs for Phase I Drug Combination Trials—✦Ruitao Lin, MD Anderson Cancer Center

10:55 a.m. DCPAS: a Bayesian Drug-Combination Platform Design with Adaptive Shrinkage—Ying Yuan, University of Texas M.D. Anderson Cancer Center; Rui Tang, Shire; ✦Jing Shen, JINGSTAT INC.

11:15 a.m. Improving Dose-Finding for Early Oncology Trials with Monotherapy and Combination Therapy—✦Zhen Zeng, Merck & Co.; Meihua Wang, Merck & Co.; Victoria Plamadeala Johnson, Merck & Co.; Cong Chen, Merck & Co.

11:35 a.m. AAA: Triple-Adaptive Bayesian Designs for the Identification of Optimal Dose Combinations in Dual-Agent Dose-Finding Trials—✦Yuan Ji, NorthShore Univ. HealthSystem / The University of Chicago; Jiaying Lyu, Fudan Universtiy

11:55 a.m. Floor Discussion

505 CC-West 206/207

■ Flexible Methods for Causality Research—Topic Contributed

Section on Statistics in Epidemiology, Biometrics Section, Health Policy Statistics Section

Organizer(s): Zhiwei Zhang, University of California at Riverside

Chair(s): Zhiwei Zhang, University of California at Riverside

10:35 a.m. Sharp Instruments for Classifying Compliers and Generalizing Causal Effects—✦Edward Kennedy, Carnegie Mellon University

10:55 a.m. Matching Using Sufficient Dimension Reduction for Causal Inference—✦Yeying Zhu, University of Waterloo; Wei Luo, Baruch College

11:15 a.m. A Robust and Efficient Approach to Causal Inference Based on Sparse Sufficient Dimension Reduction—✦Shujie Ma, UC Riverside-Dept of Statistics

11:35 a.m. Generalizability of Causal Inference in Observational Studies Under Retrospective Convenience Sampling—✦Zonghui Hu, National Institute of Health; Jing Qin, National Institute of Allergy and Infectious Diseases, NIH

11:55 a.m. A Novel Result on Collaborative Double Robustness—✦Ivan Diaz, Weill Cornell Medicine

12:15 p.m. Floor Discussion

506 CC-West 304/305

■ ● Advances in Multivariate Analysis for High-Dimensional, Complex Data Problems—Topic Contributed

Korean International Statistical Society

Organizer(s): Jeongyoun Ahn, University of Georgia

Chair(s): Nicole Lazar, University of Georgia

10:35 a.m. Sparse Quadratic Classification Rules via Linear Dimension Reduction—✦Tianying Wang, Texas A & M University; Irina Gaynanova, Texas A&M University

10:55 a.m. Computing Conditional Density of Eigenvalues in High-Dimension—✦Yunjin Choi, National University of Singapore

11:15 a.m. High-Dimensional Discrimination with Trace Regularization—✦Jeongyoun Ahn, University of Georgia; Yongho Jeon, Yonsei University; Hee Cheol Chung, University of Georgia

11:35 a.m. Supervised Dimensionality Reduction for Exponential Family Data—✦Yoonkyung Lee, Ohio State University; Andrew Landgraf, Battelle Memorial Institute

11:55 a.m. Flexible Locally Weighted Penalized Regression with Applications on Prediction of ADNI Clinical Scores—✦Peiyao Wang, ; Yufeng Liu, University of North Carolina at Chapel Hill; Dinggang Shen, University of North Carolina at Chapel Hill

12:15 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

507 CC-East 14

■ ● Bayesian Data Science and Statistical Science—Topic Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), Section on Statistical Learning and Data Science, SSC

Organizer(s): Tamara Broderick, Massachusetts Institute of Technology

Chair(s): Rajesh Ranganath, NYU Courant Institute of Mathematical Science

10:35 a.m. Polynomial Approximate Sufficient Statistics for Scalable Bayesian Inference—✦Tamara Broderick, Massachusetts Institute of Technology

10:55 a.m. Robust Clustering Using Power Posteriors: Calibration and Inference—✦Jeffrey Miller, Harvard School of Public Health; David B Dunson, Duke University

11:15 a.m. Inferring Social Structure from Continuous-Time Interaction Data—✦Bailey Fosdick, Colorado State University; Wesley Lee, University of Washington; Tyler McCormick, University of Washington

11:35 a.m. Probabilistic Programming with Non-Parametric Bayesian Model Discovery in BayesDB—✦Vikash Mansinghka, ; Feras Saad, MIT

11:55 a.m. Disc: Nicholas Foti, University of Washington

12:15 p.m. Floor Discussion

508 CC-West 221

● Leading the Estimates Towards Known Benchmarks—Topic Contributed

Survey Research Methods Section, Government Statistics Section, International Association of Survey Statisticians

Organizer(s): Luca Sartore, National Institute of Statistical Sciences

Chair(s): Clifford Spiegelman, Texas A&M University

10:35 a.m. Calibrating Big Data for Population Inference: Applying Quasi-Randomization Approach to Naturalistic Driving Data Using Bayesian Additive Regression Trees—✦Ali Rafei, University of Michigan; Michael Elliott, University of Michigan; Carol A.C. Flannagan, University of Michigan, Transport Research Institute

10:55 a.m. Using Calibration Weighting in Samples with a Non-Probability Component—✦Jamie Ridenhour, RTI International; Phil Kott, RTI

11:15 a.m. Deep Learning for Data Imputation and Calibration Weighting—✦Yijun Wei, NISS; Luca Sartore, National Institute of Statistical Sciences; Jake Abernethy, National Agricultural Statistics Service, United States Department of Agriculture; Darcy Miller, National Agricultural Statistics Service; Kelly Toppin, National Agricultural Statistics Service; Clifford Spiegelman, Texas A&M University; Michael Hyman, USDA-NASS

11:35 a.m. A Global Convergent Algorithm for Integer Calibration Weighting—✦Kelly Toppin, National Agricultural Statistics Service; Luca Sartore, National Institute of Statistical Sciences; Clifford Spiegelman, Texas A&M University

11:55 a.m. Disc: David Haziza, Université de Montréal

12:15 p.m. Floor Discussion

509 CC-West 203

■ ● New Approaches to Modeling and Inference for Complex Space-Time Data—Topic Contributed

Section on Physical and Engineering Sciences, Section on Statistical Learning and Data Science, Section on Statistics and the Environment, Quality and Productivity Section

Organizer(s): Ta-Hsin Li, IBM T. J. Watson Research Center

Chair(s): Hakmook Kang, Vanderbilt

10:35 a.m. Testing One Hypothesis Multiple Times: The Multidimensional Case—✦Sara Algeri, Imperial College London; David A van Dyk, Imperial College London

10:55 a.m. A Scalable Multi-Resolution Spatio-Temporal Model for Brain Activation and Connectivity in fMRI Data—✦Stefano Castruccio, University of Notre Dame; Hernando Ombao, King Abdullah University of Science and Technology; Marc G Genton, King Abdullah University of Science and Technology

11:15 a.m. Flexible Dynamic Modeling of Correlation and Covariance Matrices for Spatio-Temporal Data Analysis—✦Babak Shahbaba, UCI; Andrew James Holbrook, UC Irvine; Gabriel Elias, UC Irvine; Norbert J. Fortin, UC Irvine; Hernando Ombao, UC Irvine; Shiweil Lan, CalTech

11:35 a.m. Automatic Anomaly Detection in Modeling Real-Time Sensor Data—✦Bei Chen, IBM Research; Beat Buesser, IBM Research

11:55 a.m. Identification of Management Zone Using a Spatial Clustering Time-Varying Lattice Models—✦Youngdeok Hwang, Sungkyunkwan University; Huijing Jiang, IBM Research; Rodrigue Ngueyep, IBM Research

12:15 p.m. Floor Discussion

510 CC-East 16

■ ● Recent Development in the Assessment and Modeling of Asymmetric Dependence—Topic Contributed

IMS

Organizer(s): Zheng Wei, University of Maine; Daeyoung Kim, University of Massachusetts Amherst

Chair(s): Shu-Min Liao, Amherst college

10:35 a.m. Direction Dependence Modeling: a Diagnostic Framework to Test the Causal Direction of Effects in Linear Models—✦Wolfgang Wiedermann, University of Missouri; Xintong Li, University of Missouri

10:55 a.m. Analysis of Asymmetric Dependence in Contingency Tables: Subcopula-Based Regression Approach—✦Daeyoung Kim, University of Massachusetts Amherst; Zheng Wei, University of Maine

11:15 a.m. On Multivariate Asymmetric Dependence Using Multivariate Skew-Normal Copula-Based Regression—✦Zheng Wei, University of Maine

11:35 a.m. Comparisons on Measures of Asymmetric Associations—✦Tonghui Wang, New Mexico State University; Xiaonan Zhu, New Mexico State University

11:55 a.m. Floor Discussion

511 CC-West 212

Statistical Considerations for Rare Disease Clinical Development: Opportunities and Challenges—Topic Contributed

Biopharmaceutical Section

Organizer(s): Yang Song, Vertex Pharmaceuticals Inc.

Chair(s): Xihao Li, Harvard T.H. Chan School of Public Health

10:35 a.m. What Constitutes Scientific Evidence - Controversies in Rare Disease Trial Designs and Personalized Medicine—✦Mark Chang, Veristat

10:55 a.m. A Statistical Framework on Clinical Trials for Information Integration Across Data Sources with Applications to Rare Disease Clinical Development—✦Yang Song, Vertex Pharmaceuticals Inc.; Xihao Li, Harvard T.H. Chan School of Public Health

11:15 a.m. On Randomized Controlled Trials with Integrated Real World Evidence for Drug Development in Rare Diseases—✦Qing Liu, Amicus Therapeutics, Inc

11:35 a.m. Bayes in Drug Development for Rare Diseases—✦John Scott, FDA

11:55 a.m. Integrative Statistical Learning with Real World Healthcare Data: Towards a Data Driven Suicide Prevention Framework—✦Kun Chen, University of Connecticut

12:15 p.m. Floor Discussion

512 CC-West 219

■ ● Various Flavors of Missing-Data Problems—Topic Contributed

Survey Research Methods Section

Organizer(s): Florian Meinfelder, Universitet Bamberg

Chair(s): Trivellore Raghunathan, University of Michigan

10:35 a.m. Bayesian IRT and Factor Modeling with Missing Values—✦Thorsten Schnapp, University of Bamberg; Christian Aflmann, University of Bamberg

10:55 a.m. Towards Multiple-Imputation-Proper Predictive Mean Matching—✦Philipp Gaffert, GfK SE; Florian Meinfelder, Universit‰ot Bamberg; Volker Bosch, GfK SE

11:15 a.m. Hybrid Imputation Models Through Blocks—✦Stef van Buuren, TNO

11:35 a.m. Bootstrap Inference for Multiple Imputation Under Uncongeniality—✦Jonathan Bartlett, AstraZeneca

11:55 a.m. Disc: Susanne R‰ossler, Universit‰ot Bamberg

12:15 p.m. Floor Discussion

513 CC-West 204

ENVR Student Paper Awards—Topic Contributed

Section on Statistics and the Environment

Organizer(s): Edward L Boone, Virginia Commonwealth University

Chair(s): Edward L Boone, Virginia Commonwealth University

10:35 a.m. A Bayesian Spatial-Temporal Model with Latent Multivariate Log-Gamma Random Processes with Application to Earthquake Magnitudes—✦Guanyu Hu, University of Connecticut; Jonathan R Bradley, Florida State University

10:55 a.m. Spatial Statistical Downscaling for Constructing High-Resolution Nature Runs in Global Observing System Simulation Experiments—✦Pulong Ma, University of Cincinnati; Emily L. Kang, University of Cincinnati; Amy Braverman, Jet Propulsion Laboratory; Hai Nguyen, Jet Propulsion Laboratory

11:15 a.m. A Test for Isotropy on a Sphere Using Spherical Harmonic Functions—✦Indranil Sahoo, North Carolina State University; Joseph Guinness, NC State University; Brian Reich, North Carolina State University

11:35 a.m. Efficient Estimation for Non-Stationary Spatial Covariance Functions with Application to High-Resolution Climate Model Emulation—✦Yuxiao Li, KAUST; Ying Sun, KAUST

11:55 a.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

514 CC-West 115

■ Advanced Statistical Inference for Stochastic Models of Evolutionary Biology—Topic Contributed

Section on Statistics in Genomics and Genetics

Organizer(s): Lam S Ho, Dalhousie University

Chair(s): Lam S Ho, Dalhousie University

10:35 a.m.	Comparative Methods on Phylogenetic Networks—✦Claudia Solis-Lemus, Emory University; Cecile Ane, University of Wisconsin-Madison; Paul Bastide, Rega Institute, KU Leuven; Ricardo Kriebel, University of Wisconsin-Madison; William Sparks, University of Wisconsin-Madison
10:55 a.m.	Inferring Non-Bifurcating Phylogenies with the Adaptive Lasso—✦Vu Dinh, University Of Delaware
11:15 a.m.	Markov-Modulated Continuous-Time Markov Chains to Identify Site- and Branch-Specific Evolutionary Variation—✦Guy Baele, KU Leuven
11:35 a.m.	On Speciation Duration with Migrations—✦Yujin Chung, Kyonggi University
11:55 a.m.	Bayesian Nonparametrics for Evolutionary Model Selection—✦Mandev Gill,
12:15 p.m.	Floor Discussion

515 CC-West 109

■ ● Leadership at All Levels—Topic Contributed

Biopharmaceutical Section

Organizer(s): Alison Pedley,

Chair(s): Lisa Lupinacci, Merck

10:35 a.m.	"Leading at the Entry Level" - Effective Leadership as a Protocol Level Statistician—✦Alison Pedley,
10:55 a.m.	"Leading Without Authority" - Effective Leadership as Program Lead Statistician—✦Yabing Mai, AbbVie, Inc
11:15 a.m.	"Fostering Excellence" - Effective Leadership as a People Manager—✦Duane Snavely, Merck & Co.
11:35 a.m.	Points to Consider for Effective Leadership as an Organizational Leader—✦Bruce Binkowitz, Shionogi & Co., Ltd.
9:55 p.m.	Disc: Eric Pulkstenis, AbbVie
12:15 p.m.	Floor Discussion

516 CC-West 202

■ ● Setting up to Lead with Analytics: Organizational and Managerial Considerations—Topic Contributed

Section on Statistical Consulting

Organizer(s): Michiko I Wolcott, Msight Analytics

Chair(s): Vladimir J. Geneus, Eli Lilly and Company

10:35 a.m.	Training Data Scientists - Experiential Learning Through Corporate/University Partnerships—✦Herman Ray,
10:55 a.m.	The Care and Feeding of Magical Creatures: Managing Statisticians and Data Scientists in an Analytically Enthused World—✦Chuck Kincaid, Experis BI & Analytics Practice
11:15 a.m.	Designing the Organization to Lead with Analytics—✦Michiko I Wolcott, Msight Analytics
11:35 a.m.	Brief History of Statistics Without Borders Organizational Transformation—✦Cathy Furlong, Statistics Without Borders
11:55 a.m.	Disc: Douglas Zahn, Zahn & Associates
12:15 p.m.	Floor Discussion

517 CC-West 205

■ Multivariate Analysis of Brain Imaging Data in Mental Disorders—Topic Contributed

Mental Health Statistics Section, Section on Statistics in Imaging

Organizer(s): Samprit Banerjee, Weill Medical College, Cornell University

Chair(s): Davide Risso, Weill Cornell Medicine

10:35 a.m.	Discovering Depression Subtypes with High-Dimensional Eigenvalue Estimation on Resting-State fMRI Data—✦Samprit Banerjee, Weill Medical College, Cornell University
10:55 a.m.	New Statistical Methods for Analyzing Whole Brain Metabolites Using High-Resolution MRS Data—✦Shuo Chen, University of Maryland, School of Medicine
11:15 a.m.	Scalar-On-Function Prediction Models with Missing Covariates: Applications in Depression Research Using EEG and Clinical Data—✦Adam Ciarleglio, Columbia University and the New York State Psychiatric Institute; Eva Petkova, NYU School of Medicine
11:35 a.m.	Genome-Wide Heritability Analysis with High-Dimensional Imaging Phenotypes—✦Yize Zhao, Weill Cornell Medical College
11:55 a.m.	Disc: Melanie M. Wall, Columbia University
12:15 p.m.	Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

518 CC-West 214

Special Session: Student Paper Competition—Topic Contributed

Section on Statistics in Imaging

Organizer(s): Tingting Zhang, University of Virginia

Chair(s): John Kornak, University of California, San Francisco

10:35 a.m. Longitudinal Independent Component Modeling Framework for fMRI Decomposition—✦Yikai Wang, Emory University; Ying Guo, Emory University

10:55 a.m. Adaptive Mantel Test for Penalized Inference, with Applications to Imaging Genetics—✦Dustin Pluta, University of California, Irvine; Tong Shen, University of California, Irvine; Hernando Ombao, King Abdullah University of Science and Technology; Zhaoxia Yu, University of California, Irvine

11:15 a.m. Bayesian Integrative Analysis of Radiogenomics—✦Youyi Zhang, The University of Texas MD Anderson Cancer Center UTHealth Graduate School of Biomedical S; Jeffrey S Morris, The University of Texas M.D. Anderson Cancer Center; Shivali Narang Aerry, Engineering for Professionals, Whiting School of Engineering, Johns Hopkins University; Arvind U.K. Rao, The University of Texas MD Anderson Cancer Center; Veera Baladandayuthapani, UT MD Anderson Cancer Center

11:35 a.m. Disc: Xiwei Tang, University of Virginia

11:55 a.m. Disc: Zhengwu Zhang, University of Rochester Medical Center

12:15 p.m. Floor Discussion

Topic Contributed Panels 10:30 a.m.—12:20 p.m.

519 CC-West 210

■ ● So You Think You Want to Be a Department Chair? Rewards, Challenges, and Balance—Topic Contributed

Committee on Career Development, Caucus for Women in Statistics

Organizer(s): Leslie McClure, Drexel University

Chair(s): Josee Dupuis, Boston University School of Public Health

Panelists: ✦Karen Bandeen-Roche, Johns Hopkins University

✦Jeffrey Buzas, University of Vermont

✦Merlise Clyde, Duke University

✦Lloyd Edwards, University of Alabama at Birmingham

12:10 p.m. Floor Discussion

Contributed Sessions 10:30 a.m.—12:20 p.m.

520 CC-West 114

■ Survival Analysis III—Contributed

Biometrics Section

Chair(s): Xiaofei Hu, Abbvie

10:35 a.m. Analysis of Lethal Cancer Among a Cohort of Initially Disease-Free Women—✦Bernard Rosner, Harvard Medical School; Elizabeth Poole, Sanofi

10:50 a.m. Time-To-Event Data with Time-Varying Biomarkers Measured Only at Study Entry, with Applications to Alzheimer's Disease—✦Catherine Lee, Kaiser Permanente Division of Research; Rebecca A. Betensky, Harvard School of Public Health

11:05 a.m. Estimating the Optimal Number and Location of Cut Points in Survival Analysis—✦Chung Chang, National Sun Yat-sen University

11:20 a.m. Transformed Dynamic Quantile Regression on Censored Data—✦Tony Sit, The Chinese University of Hong Kong; Gongjun Xu, University of Michigan; Chi Wing George Chu, Columbia University

11:35 a.m. Group Sequential Tests of Treatment Effect on Survival and Cumulative Incidence at a Fixed Time Point—✦Michael Martens, The Emmes Corporation; Brent Logan, Medical College of Wisconsin

11:50 a.m. Improving Testing and Description of Treatment Effect in Clinical Trials with Time-To-Event Outcomes—✦Song Yang, NHLBI/NIH

12:05 p.m. Alternative Guarantees for Non-Inferiority and Equivalence Testing with a Data-Dependent Margin—✦Harlan Campbell, University of British Columbia

521 CC-West 112

■ Model/Variable Selection—Contributed

Biometrics Section

Chair(s): Jonathan Gillmore Ligo, Johns Hopkins Applied Physics Laboratory

10:35 a.m. Penalized Multiple Inflated Values Selection Method with Application to SAFER Data—✦Qiuya Li, City University of Hong Kong; Kwok Fai TSO, City University of Hong Kong; Yang Li, Renmin University of China; Yichen Qin, University of Cincinnati; Travis Lovejoy, Oregon Health and Science University; Timothy Heckman, University of Georgia

10:50 a.m. Bayesian Group Selection for Compositional Data: Application to Imaging Genomic Data for Glioblastoma Disease—✦Thierry Chekouo Tekougang, University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

of Minnesota Duluth; Francesco Stingo, University of Florence, Italy; Veera Baladandayuthapani, UT MD Anderson Cancer Center; Arvind U.K. Rao, The University of Texas MD Anderson Cancer Center

11:05 a.m. Fast and Approximate Exhaustive Variable Selection for GLMs with APES—✦Kevin Wang, The University of Sydney; Samuel Mueller, The University of Sydney; Garth Tarr, The University of Sydney; Jean Yee Hwa Yang, University of Sydney, Australia

11:20 a.m. Functional Variable Selection for a Low-Dimensional Robotic Hand Prosthetic—✦Jonathan Stallings, North Carolina State University; Ana-Maria Staicu, NC State University; Md Islam, North Carolina State University; Helen Huang, UNC Chapel Hill/North Carolina State University; Lizhi Pan, UNC Chapel Hill/NC State University; Dustin Crouch, University of Tennessee

11:35 a.m. Weighted Envelope Estimation to Handle Variability in Model Selection—✦Daniel J. Eck,

11:50 a.m. Prediction of Melanoma Prognosis Class Using a Multiclass Discriminant Analysis Classifier with Variable Selection—✦Sarah Romanes, The University of Sydney; John T Ormerod, University of Sydney; Jean Yee Hwa Yang, University of Sydney, Australia

12:05 p.m. Floor Discussion

522 CC-East 9

● Recent Advances in Semiparametric Statistical Methods—Contributed

Section on Nonparametric Statistics

Chair(s): Michelle M Wiest, University of Idaho

10:35 a.m. Semiparametric Mixture Regression Under a Symmetric Unimodal Error Distribution—✦Linden Yuan, University of Maryland

10:50 a.m. Approximate Pointwise Tolerance Intervals for Semiparametric Regression Models—✦Kedai Cheng, University of Kentucky; Derek S. Young, University of Kentucky

11:05 a.m. Sparse Model Identification and Learning for Ultra-High-Dimensional Additive Partially Linear Models—✦Xinyi Li, ; Lily Wang, Iowa State University; Dan Nettleton, Iowa State University

11:20 a.m. Inference for Covariate-Adjusted Semiparametric Gaussian Copula Model Using Residual Ranks—✦Yue Zhao, KU Leuven; Irene Gijbels, KU Leuven; Ingrid Van Keilegom, KU Leuven

11:35 a.m. One-Step and Two-Step Estimation in a Time-Varying Parametric Model—✦Bogdan Gadidov, Kennesaw State University; Mohammed Chowdhury, Kennesaw State University; Brad Barney, Brigham Young University

11:50 a.m. Floor Discussion

523 CC-West 217

Fresh Approaches to Statistical Pedagogy—Contributed

Section on Statistical Education

Chair(s): Sybil Nelson,

10:35 a.m. On Assessing Large Sample Properties of Estimators: An Empirical Approach—✦Sadia Sarker, Eastern Michigan University; Khairul Islam, Eastern Michigan University

10:50 a.m. Extending the Applications of Simulation-Based Approaches in the Teaching of Elementary Statistics—✦Sherry Hix, University of North Georgia; Dianna Spence, University of North Georgia

11:05 a.m. Using Simulation Processes to Close the Background Gap Among Students—✦Arturo Valdivia, Indiana University

11:20 a.m. Early Introduction of Hypothesis Testing in Introductory Statistics: a Pilot Study—✦Wei Wei, Metropolitan State University; Heidi Hulsizer, Benedictine College; Aminul Huq, University of Minnesota Rochester

11:35 a.m. STEM Storytellers: Improving Graduate Students' Oral Communication Skills—✦Jennifer L Green, Montana State University; Shannon Willoughby, Montana State University; Brock LaMeres, Montana State University; Bryce Hughes, Montana State University; Leila Sterman, Montana State University; Christopher Organ, Montana State University; Kent Davis, Montana State University

11:50 a.m. Reflections on 10 Years of Teaching Online—✦Iain Pardoe, Thompson Rivers University

12:05 p.m. A Generalized Z Score for Both Symmetric and Asymmetric Distribution—✦Mian Adnan, Indiana University Bloomington

524 CC-West 111

Statistical Issues in Drug Development - 2—Contributed

Biopharmaceutical Section

Chair(s): Hui Yang, Amgen Inc.

10:35 a.m. Application of the Win Ratio for Benefit-Risk Analysis—✦T. Ceesay, Merck ; Shahrul Mt-Isa, Merck; Joseph F. Heyse, Merck Research Laboratories

10:50 a.m. A Simulation Study of Consistency Evaluation Between Local and Global Results in Multi-Regional Clinical Trials—✦Chunsheng He, Bristol-Myers Squibb; Jingyi Lin, Duke University; Stephane Munier, Bristol-Myers Squibb; Shein-Chung Chow, Duke University; Lisa Ying,

11:05 a.m. A Comparison of Statistical Models for Recurrent Events with Applications to Hospitalization and Death Events—✦Jihong Chen, Alnylam Pharmaceuticals; Tim Lin, Alnylam Pharmaceuticals; Matthew T. White, Alnylam Pharmaceuticals; Christine Powell, Alnylam Pharmaceuticals; Andrew Strahs, Alnylam Pharmaceuticals

11:20 a.m. Addressing the Issue of Subject Confusion Due to the Use of Two Visual Analog Scales in Human Abuse Potential Studies—✦Ling Chen, CDER, FDA

11:35 a.m. Rescue Medications from a Statistical Perspective - Case Studies and More—✦qing li, merck; Man (Mandy) Jin, Merck & Co., Inc.

11:50 a.m. Propensity Score Methods for Efficacy Comparison in the Lack of Randomization—✦Qing Li, University of Iowa/ Celgene Corp.; Guang Chen, Celgene Corp.; Tommy Fu, Celgene Corp.

12:05 p.m. An Evaluation of Statistical Approaches to Post Marketing Surveillance—✦Yuxin Ding, University at Buffalo; Marianthi Markatou, University at Buffalo; Robert Ball, U.S. Food and Drug Administration,Center for Drug Evaluation and Research

525 CC-West 209

● Clinical Trial Design- 6—Contributed

Biopharmaceutical Section

Chair(s): Rachael Wen, Sanofi

10:35 a.m. Asymptotic MinP Method for Responder Analysis—✦Ming Zhou, Bristol-Myers Squibb Company; Mark Donovan, Bristol-Myers Squibb

10:50 a.m. Estimating Probability of Simultaneous Success with Multiple Endpoints Using Truncated Multi-Variate Correlated Normal Distribution—✦Tianshuang Wu, AbbVie; Yihua Gu, AbbVie; Ziqian Geng, AbbVie; Saurabh Mukhopadhyay, AbbVie

11:05 a.m. Measuring the Individual Benefits of a Medical or Behavioral Treatment Using Generalized Linear Mixed-Effects Models—✦Francisco Diaz, The University of Kansas Medical Center

11:20 a.m. Comparison of Support Vector Machine and Conformal Inference of in Regression Prediction—✦Kao-Tai Tsai, Celgene

11:35 a.m. Adaptive Dose Finding in Oncology Phase I-II Studies with Consideration of Tolerability and Efficacy—✦Rachael Liu, Takeda Pharmaceuticals ; Ling Wang, Takeda; David Sinclair, Google; Jianchang Lin, Takeda Pharmaceuticals

11:50 a.m. How the ICH E9 Addendum Influenced a Phase III Clinical Trial with a Radiographic Endpoint—✦Ruvie Martin, Novartis Pharmaceuticals

12:05 p.m. Floor Discussion

526 CC-East 17

Bayesian Clustering and Variable Selection—Contributed

Section on Bayesian Statistical Science

Chair(s): Mike Henderson,

10:35 a.m. Learning the Number of Components and Data Clusters in Bayesian Finite Mixture Models—✦Bettina Grün, Johannes Kepler Universit%ot; Gertraud Malsiner-Walli, Wirtschaftsuniversitet Wien; Sylvia Fr¸hwirth-Schnatter, Wirtschaftsuniversitet Wien

10:50 a.m. Model-Based Clustering with Continuous Classification Likelihood—✦Shahina Rahman, Texas A&M University; Valen E Johnson, Texas A&M University

11:05 a.m. Spike-And-Slab Lasso Biclustering—✦Gemma Moran, Wharton School of Business; Veronika Rockova, University of Chicago; Edward George, Wharton, University of Pennsylvania

11:20 a.m. A Bayesian Method for Variable Screening—✦Somak Dutta, Iowa State University; Vivekananda Roy, Iowa State University

11:35 a.m. Nonparametric Mixture Modeling on Constrained Spaces—✦Putu Ayu Sudyanti, Purdue; Vinayak P Rao, Purdue University

11:50 a.m. Bayesian Variable Selection Using Spike and Slab Prior with Application to High-Dimensional EEG Data by Local Modeling—✦Shariq Mohammed, University of Connecticut; Dipak Kumar Dey, University of Connecticut; Yuping Zhang, University of Connecticut

12:05 p.m. Bayesian Variable Selection for Multi-Outcome Models Through Shared Shrinkage—✦Debamita Kundu, University of Louisville; Jeremy Gaskins, University of Louisville; Ritendranath Mitra, University of Louisville

527 CC-West 208

Diagnostic Tests: Student Papers and Correlated Data—Contributed

Section on Medical Devices and Diagnostics

Chair(s): Jin Jin, Division of Biostatistics, University of Minnesota

10:35 a.m. Bayesian and Influence Function Based Empirical Likelihoods for Inference of Sensitivity in Diagnostic Tests—✦Yan Hai, Georgia State University; Gengsheng Qin, Georgia State University; Xiaoyi Min, Georgia State University

10:50 a.m. FAST Adaptive Smoothing and Thresholding for Improved Activation Detection in Low-Signal fMRI—✦Israel Almodovar-Rivera, University of Puerto Rico-Medical Science Campus; Ranjan Maitra, Iowa State University

11:05 a.m. A New Half-Marginal Approach for Analyzing Cross-Correlated Binary Data from Multi-Reader Studies of Diagnostic Accuracy—✦Yuvika Paliwal, Teva Pharmaceuticals; Andriy Bandos, University of Pittsburgh

11:20 a.m. On Statistical Inference in Factorial Multi-Reader Studies Using Bootstrap—✦Andriy Bandos, University of Pittsburgh

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

11:35 a.m. Methods for Diagnostic Performance Comparison with Correlated Data—✦Xuan Ye, U.S. Food and Drug Administration

11:50 a.m. Comparison of Two Methods for Evaluating Bias in Method Comparison Studies—✦Kyungsook Kim, FDA

12:05 p.m. Floor Discussion

528 CC-West 119

Analysis of Big Data—Contributed

Section on Statistical Learning and Data Science, SSC

Chair(s): Elizabeth Chou, National Chengchi University

10:35 a.m. Hybridized Threshold Clustering for Massive Data—✦Jianmei Luo, KANSAS STATE UNIVERSITY; Michael Higgins, KANSAS STATE UNIVERSITY; William Henry Hsu, KANSAS STATE UNIVERSITY; ChandraVyas Annakula, KANSAS STATE UNIVERSITY; Aruna Sai Kannamareddy, KANSAS STATE UNIVERSITY

10:50 a.m. Fusion Learning with High-Dimensionality—✦Xin Gao, York University; Raymond J. Carroll, Texas A & M University

11:05 a.m. High-Dimensional Regression for Microbiome Compositional Data—✦Xiaohan Yan, Cornell University; Jacob Bien, University of Southern California

11:20 a.m. Intent Analysis in High Frequency Trading System—✦Brahim Brahim, BDV (Big Data Visualizations)

11:35 a.m. Penalized Jackknife Empirical Likelihood in High Dimension—✦Na Zhao, ; jinfeng Xu, The University of Hong Kong

11:50 a.m. Correct Model Selection in Big Data Analyzes—✦Katherine Thompson, University of Kentucky

12:05 p.m. Floor Discussion

529 CC-West 117

Regression Trees and Random Forests—Contributed

Section on Statistical Learning and Data Science

Chair(s): Dawei Liu, Biogen

10:35 a.m. Regression Trees and Ensemble Methods for Multivariate Outcomes—✦Evan Reynolds, University of Michigan; Mousumi Banerjee, University of Michigan

10:50 a.m. Repeated Measures Random Forests: Identifying Factors Associated with Nocturnal Hypoglycemia—✦Juanjuan Fan, San Diego State University; Peter Calhoun, Dexcom, Inc.; Richard Levine, San Diego State University

11:05 a.m. Uniformity of Personalized Treatment—✦Georgiy Bobashev, Research Triangle Institute; Barry Eggleston, RTI International; Benjamin Carper, RTI International

11:20 a.m. Locally Linear Forests: Leveraging Smoothness with Random Forests—✦Rina Friedberg, Stanford University; Julie Tibshirani, Palantir Technologies; Susan Athey, Stanford University; Stefan Wager, Stanford University

11:35 a.m. Conditional Quantile Regression Tree/Random Forest—✦Huichen Zhu, ; Ying Wei, Columbia University

11:50 a.m. Spectral Clustering via Unsupervised Random Forests—✦William Biscarri, University of Illinois at Urbana-Champaign; Robert J. Brunner, University of Illinois at Urbana-Champaign; Ruoqing Zhu, University of Illinois Urbana-Champaign

12:05 p.m. Assessing Authorship of Beatles Songs from Musical Content: Bayesian Classification Modeling from Bags-Of-Words Representations—✦Mark Glickman, Harvard University; Jason Brown, Dept of Mathematics, Dalhousie University; Ryan Song, School of Engineering and Applied Science, Harvard University

530 CC-West 116

Integrative Genomics: EQTL and GWAS—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Eun Jeong Min, University of Pennsylvania

10:35 a.m. Optimal Estimation of Simultaneous Signals Using Absolute Inner Product with Applications to Integrative Genomics—✦Rong Ma, University of Pennsylvania; Tianwen Cai, University of Pennsylvania; Hongzhe Li, University of Pennsylvania; Mark G Low, University of Pennsylvania

10:50 a.m. Estimation and Inference for the Indirect Effect in High-Dimensional Linear Mediation Models—✦Ruixuan Zhou, University of Illinois at Urbana-Champaign; Liewei Wang, Mayo Clinic; Dave Zhao, University of Illinois at Urbana-Champaign

11:05 a.m. Degree Centrality of SNPs in EQTL Networks—✦Sheila Gaynor, Harvard University; Maud Fagny, Dana Farber Cancer Institute; John Platig, Dana Farber Cancer Institute; Xihong Lin, Harvard University; John Quackenbush, Dana Farber Cancer Institute

11:20 a.m. Integrating Data from GWAS and EQTL by Estimating Genetic Relatedness—✦Jianqiao Wang, University of Pennsylvania; Hongzhe Li, University of Pennsylvania

11:35 a.m. GLMM-Seq: Detection of Population-Based Gene Level Allele-Specific Expression by RNA-Seq—✦Jiaxin Fan, University of Pennsylvania; Jian Hu, University of Pennsylvania; Muredach Reilly, Columbia University; Rui Xiao, University of Pennsylvania; Mingyao Li, University of Pennsylvania

11:50 a.m. Genotype Prediction for All Publicly Available RNA-Seq Data—✦Siruo Wang, Johns Hopkins Bloomberg SPH; Jeffrey Leek, Johns Hopkins Bloomberg School of Public Health

12:05 p.m. Floor Discussion

531 CC-West 218

Survey Modes and Measurement Error—Contributed

Survey Research Methods Section

Chair(s): Rebecca Andridge, The Ohio State University College of Public Health

10:35 a.m. Mixing Modes Versus Providing Internet Equipment: How Do Different Strategies of Including the Offline Population Affect Probability-Based Online Panel Data Over Time?—✦Carina Cornesse, University of Mannheim; Ines Schaurer, GESIS - Leibniz Institute for the Social Sciences

10:50 a.m. Unpacking the Use of Incentives in Probability-Based Web Surveys: Evidence Across Recent Experimental Studies—✦Michael Stern, NORC At Univerity of Chicago; Erin Fordyce, NORC at the University of Chicago

11:05 a.m. Order Effects and Occupational Misclassification on the Agricultural Labor Survey—✦David Biagas, National Agricultural Statistics Service

11:20 a.m. Household Informant Reporting of Crime Victimization—✦W Sherman Edwards, Westat; Pamela Giambo, Westat; J. Michael Brick, Westat; Grace Kena, Bureau of Justice Statistics

11:35 a.m. Measurement Errors in Reported Race-Related Attitudes by Race of Interviewer, Perceived Race of Interviewer, and Race of Respondent—✦Paul Lavrakas, Self-Employed - Independent Consultant; Dan Thaler, Michigan State U. Office for Survey Research; Lin Stork, Michigan State U. Office for Survey Research; Del Solis, Michigan State U. Office for Survey Research

11:50 a.m. The Proportional Odds Model with Response Variables Subject to Multi-Level Randomized Response—✦Shu-Hui Hsieh, Research Center for Humanities and Social Science, Academia Sinica

12:05 p.m. Floor Discussion

532 CC-West 223

■ Can Statistics Inform Decisions in Social, Economic, and Political Event?—Contributed

Social Statistics Section

Chair(s): Barbara Robles, Federal Reserve Board

10:35 a.m. Wages and the Dynamics of Job Creation and Job Destruction—✦Akbar Sadeghi, Bureau of Labor Statistics; Kevin S Cooksey, Bureau of Labor Statistics

10:50 a.m. Linking Input Inequality and Outcome Inequality—✦Guillermina Jasso, New York University

11:05 a.m. Identifying Farming Practices and Characteristics Associated with Higher Incomes for Smallholder Farms in Kibaale District, Uganda—✦Yew-Meng Koh, Hope College

11:20 a.m. Recommender System Approaches for Data Quality and Data Validation—✦Anne Parker, Internal Revenue Service; William Roberts, Deloitte; Danielle Gewurz, Deloitte

11:35 a.m. Scoring Approaches for Automated Scoring of Spoken Constructed Responses—✦Lili Yao, ETS; Mo Zhang, ETS; Shelby Haberman, Edusoft; Neil Dorans, ETS

11:50 a.m. STatistical Election to Partition Sequentially (STEPS) and Its Application in Differentially Private Release and Analysis of Youth Voter Registration Data—✦Claire Bowen, University of Notre Dame; Fang Liu, University of Notre Dame

12:05 p.m. Data Beat Anecdotes-Really?—✦Joseph Van Matre, School Of Business, U.A.B.

533 CC-West 120

SLDS CPapers NEW 2—Contributed

Section on Statistical Learning and Data Science, Section on Statistical Consulting

Chair(s): Xin Guo, The Hong Kong Polytechnic University

10:35 a.m. Manifold Learning for Network Inference—✦Mingyue Gao, The Johns Hopkins University; Carey E Priebe, Johns Hopkins University; Minh Tang, Johns Hopkins University

10:50 a.m. Real-World Learning Analytics: Modeling Student Academic Practices and Performance—✦Chantal D. Larose, Eastern Connecticut State University; Kim Y. Ward, Eastern Connecticut State University

11:05 a.m. Big Data, Google, and Infectious Disease Prediction: a Statistical Perspective—✦Shihao Yang, ; S. C. Kou, Harvard University; Mauricio Santillana, Harvard University

11:20 a.m. Time-Constrained Predictive Modeling on Large and Continuously Updating Financial Data Sets—✦Bernard Lee, HedgeSPA Limited; Nicos Christofides, Imperial College London

11:35 a.m. Predictive Modeling Applied in National Reporter Cleaning—✦Xuemei Pan, ; Mary Pritts, IBM; COBY LU, IBM

11:50 a.m. Data Science in a Hurry—✦Iyue Sung,

12:05 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Contributed Poster Presentations 10:30 a.m.—12:20 p.m.

534 CC- West Hall B

Contributed Poster Presentations: Section on Statistics in Epidemiology—Contributed

Section on Statistics in Epidemiology

Chair(s): Paul McNicholas, McMaster University

Section on Statistics in Epidemiology

1 **Behaviors and Exposures Associated with Pathogen Carriage at a Large Community Gathering**—✦Ruby Bayliss, St. Catherine University; Meghan Mason, St. Catherine University; Bozena Morawski, University of Minnesota; James Johnson, University of Miinesota; Connie Clabots, Minneapolis VA Health Care System

2 **State-, County-, and Individual-Level Factors Associated with Influenza Vaccination Coverage Among Adults Based on a Multilevel Modeling Approach, BRFSS 2015**—✦Alissa O'Halloran, CDC; Pengjun Lu, CDC/NCIRD/ISD/AB; Anup Srivastav, Leidos; David Yankey, Centers for Disease Control and Prevention; Walter Williams, CDC; James Singleton , CDC

3 **Influence of Highly Correlated Cross-Basis Functions in the Distributed Lag Nonlinear Model**—✦Lung-Chang Chien, University of Nevada, Las Vegas; Yunqi Vicky Liao, University of Texas Health Science Center (UTHealth) School of Public Health at Houston; Michael Swartz, University of Texas Health Science Center (UTHealth) School of Public Health at Houston; Kristina Whitworth, University of Texas Health Science Center (UTHealth) School of Public Health at Houston

4 **Mediation with Latent Variables**—✦Joshua Sampson, National Cancer Institute; Andriy Derkach, National Cancer Institute; Ruth Pfeiffer , National Cancer Institute

5 **Quantifying Geographic Regions of Excess Stillbirth Risk in the Presence of Spatio-Temporal Heterogeneity**—✦David Zahrieh, Mayo Clinic Rochester; Jacob J Oleson, The University of Iowa; Paul A Romitti, The University of Iowa

6 **Exploring Treatment Heterogeneity Using Propensity Scores**—✦Maozhu Dai, University of California, Irvine; Hal Stern, University of California, Irvine

7 **Representativeness of the Spinal Cord Injury Model Systems National Database**—✦Jessica McKinney Ketchum, Craig Hospital

Section on Nonparametric Statistics

8 **Regression Analysis of Clustered Interval-Censored Failure Time Data with Informative Cluster Size Based on Linear Transformation Models**—✦Chenchen Ma, (Tony) Jianguo Sun, University of Missouri

Section on Statistics in Epidemiology

9 **Bias Analysis of Current Approaches to Estimating Combined Population Attributable Risk for Multiple Risk Factors**—✦Yibing Ruan, Alberta Health Services; Stephen D. Walter, McMaster University; Darren R. Brenner, Alberta Health Services; Christine M. Friedenreich, Alberta Health Services; on behalf of ComPARe Study Team, Alberta Health Services

10 **Propensity Score Methods for Merging Observational and Experimental Data Sets**—✦Evan Taylor Ragosa Rosenman, Stanford University; Art Owen, Stanford University; Michael Baiocchi, Stanford University

11 **False Positives and Population Stratification**—✦Renfang Jiang, Michigan Tech University; Jianping Dong, Michigan Technological University

12 **Distance-Weighted Predictor Models to Estimate the Spatial Scale of Built Environment Health Effects**—✦Adam Peterson, University of Michigan; Brisa N. Sanchez, University of Michigan; Emma V Sanchez-Vaznaugh, San Francisco State University

13 **Pairwise Comparisons for Ethnic Race Disparity in Reporting Sexually Transmitted Disease Among U.S. Male and Female Active Duty Military Members**—✦Tzu-Cheg Kao, Uniformed Services University; Brian Agan, Uniformed Services University of the Health Sciences; Yu-Han Cheng, Uniformed Services University of the Health Sciences; Eric Garges, Uniformed Services University of the Health Sciences

14 **A Nonlinear Mixed Effects Model to Estimate Declines in Mycobacterium Tuberculosis DNA Burden from Viable Bacteria During Tuberculosis Treatment**—✦Camille Moore, National Jewish Health; Nicholas Walter, University of Colorado Denver

15 **Reliability-Adjusted Composite Measures for the Prevention of Healthcare-Associated Infections (HAIs)**—✦Mathew Sapiano, CDC; Jonathan R Edwards, Center for Disease Control & Prevention

16 Estimating the Causal Effect of Antidepressant Use on Time-To-Dementia for Incident MCI Patients Using Marginal Structural Fine-Gray Model—✦Ran Duan, University of Kentucky ; Erin L Abner, University of Kentucky; Daniela Moga, University of Kentucky

17 **Modeling the Progression of HIV/AIDS by a Hidden Markov Model(HMM)**—✦Sanam Sanei, Penn State; Shanglun Li, Penn State; Le Le Bao, Penn State University

18 **Semiparametric Accelerated Failure Time Model Under a Multivariate Outcome-Dependent Sample Design**—✦Tsui-shan Lu, National Taiwan Normal University

19 **Deriving and Validating New "outcome" Variables in Patient Reported Epidemiological Data**—✦Futoshi Yumoto, Resonate; Rochelle Tractenberg, Georgetown University

20 **Using Twin Study Data to Identify Causal Effects Under Latent Confounding**—✦Yige Li, Harvard School of Public Health; Zhichao Jiang, Princeton University; Zhi Geng, Peking University

21 **Visualizing Sensitivity Analysis for Early Withdrawals**—✦Neil Perkins, DIPHR/NICHD/NIH

22 **Catalyst: Agents of Change -- Comparing Compartment and Agent-Based Models**—✦Shannon Gallagher,

23 **Estimating and Interpreting Effects from Nonlinear Exposure-Response Curves in Occupational Cohorts Using Truncated Power Basis Expansions and Penalized Splines**—✦Elizabeth J Malloy, American University; Jay M. Kapellusch, University of Wisconsin-Milwaukee; Arun M. Garg, University of Wisconsin-Milwaukee

24 **On Causal Inference in the Presence of Limited Overlap**—✦Tingting Zhou, University of Michigan; Michael Elliott, University of Michigan; Roderick J Little, University of Michigan

25 **The Impact of Analysis Method and Model Specification for Handling Missing Covariate Data in Survival Analysis: a Case Study**—✦Evon Okidi, Brown University; Joseph W Hogan, Brown University School of Public Health; Chanelle Howe, Brown University

26 **Ggdag and Confoundr: R Packages for Causal Inference with DAGs and Data**—✦Malcolm Barrett,

27 **Estimation of the Survival Prognosis Under Immortal Time Bias**—✦Kevin Benac, UC Berkeley

28 **Estimation of HIV Prevalence and Covariance within High Risk Groups with Bayesian hierarchical modeling**—✦Amy Zhang, Pennsylvania State University; Le Bao, Pennsylvania State University

535 CC- West Hall B

Contributed Poster Presentations: Section on Statistics in Genomics and Genetics—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Paul McNicholas, McMaster University

Section on Statistics in Genomics and Genetics

29 **Accounting for Unobserved Covariates with Varying Degrees of Estimability in High-Dimensional Data**—✦Chris McKennan, University of Chicago; Dan Nicolae, University of Chicago

30 **SAME-Clustering: Single-Cell Aggregated Clustering via Mixture Model Ensemble**—✦Ruth Huh, University of North Carolina at Chapel Hill; Yuchen Yang, University of North Carolina at Chapel Hill; Houston Culpepper, University of North Carolina at Chapel Hill; Jin Szatkiewicz, University of North Carolina at Chapel Hill; Yun Li, University of North Carolina at Chapel Hill

31 **Identification of RNA-Seq Shape Abnormality**—✦Hyo Young Choi, UNC Chapel Hill; J. S. (Steve) Marron, University of North Carolina; David Neil Hayes, UNC Chapel Hill

32 **Statistical Methods to Associate Intra-Tumor Heterogeneity with Clinical Outcomes**—✦Paul Little, UNC Chapel Hill; Danyu Lin, University of North Carolina; Wei Sun, Fred Hutchinson Cancer Research Center

33 **Harnessing Relatedness for Genotyping Autopolyploids**—✦David Gerard, University of Chicago; Matthew Stephens, University of Chicago; Luis Felipe Ventorim Ferr„o, University of Florida

34 **Decomposing Pearson's Chi-Squared Test: a Linear Regression and Departure from Linearity**—✦Hung-Chih Ku, DePaul University; Zhengyang Zhou, Southern Methodist University; Chao Xing, University of Texas Southwestern Medical Center

35 **Secondary Data Analysis to Predict Therapeutic Outcome of Colorectal Cancer Patients**—✦Hannah Monique Bredikhin, Purdue University; Jun Xie, Purdue University

36 **Robust Kernel Association Test (RobKAT)**—✦Kara Martinez, North Carolina State University

37 **An Improved Estimator for Variance Components in Linear Mixed Model**—✦Kun Yue, University of Washington; Jing Ma, Fred Hutch Cancer Research Center; Ali Shojaie, University of Washington

38 **BinQuasi: a Peak Detection Method for ChIP-Sequencing Data with Biological Replicates**—✦Emily Goren, Iowa Sate University; Peng Liu, Iowa State University; Chao Wang, Iowa State University; Chong Wang, Iowa State University

39 **TWO-SIGMA: a Two-Component Generalized Linear Mixed Model for ScRNA-Seq Association Analysis**—✦Eric Van Buren, UNC Chapel Hill; Yun Li, University of North Carolina at Chapel Hill; Ming Hu, Cleveland Clinic Foundation; Di Wu, UNC Chapel HIll

40 **Effects of Zeros on Analysis in the Microbiome Data**—✦Amy Pan, Medical College of Wisconsin; Nita Salzman, Medical College of Wisconsin; T.Hang Nghiem-Rao, Medical College of Wisconsin; Martin Hessner, Medical College of Wisconsin; Pippa Simpson, Medical College of Wisconsin

41 **Assessing Equivalent and Inverse Change in Genomic Data from Multiple Experiments: a New Approach to Functional Analysis**—✦Jeffrey Thompson, The University of Kansas Medical Center

42 **Testing Differential Gene Expression from Single-Cell RNA-Seq Data Using Bayes Deconvolusion**—✦Jingyi Zhai, University of Michigan; Hui Jiang, University of Michigan

43 **PwrEWAS: a Computationally Efficient Tool for Comprehensive Power Estimation in EWAS**—✦Stefan Graw, University of Kansas Medical Center; Devin C Koestler, University of Kansas Medical Center

44 **A Bayesian Framework for Assessing Concordance** in Microbial Abundance with Respect to Grouping Variables—✦Richard Meier, University of Kansas Medical Center; Dominique Michaud, Tufts University School of Medicine; Devin C Koestler, University of Kansas Medical Center

45 Allele Specific Information in Mendelian Randomization—✦Xuran Wang, University of Pennsylvania; Nancy Zhang, University of Pennsylvania; Dylan Small, University of Pennsylvania; Mingyao Li, University of Pennsylvania

46 **Single Cell Data Mining of Live Cell Epigenetic Modifications**—✦Chris Bryan

47 **A Bayesian Latent Variable Approach to Aggregation of Partial and Top Ranked Lists in Genomic Studies**—✦Xue Li, Capital One; Xinlei (Sherry) Wang, Southern Methodist University; Pankaj Choudhary, University of Texas at Dallas; Swati Biswas, University of Texas at Dallas

48 **Statistical Inference for Proteomics Data with Missing Peptide Concentrations**—✦Hyeongseon Jeon, ; Dan Nettleton, Iowa State University

49 **SoftPanel: Grouping Diseases and Related Disorders for Customized Gene Panels**—✦Cong Zhang, The University of Texas at Dallas

50 **Inferences in High-Dimensional Misspecified Mixed Model Analysis for GWAS**—✦Cecilia Dao, Yale Univ; Jiming Jiang, University of California, Davis; Debashis Paul, UC Davis; Hongyu Zhao, Yale

51 **A Bayesian Hierarchical Model for Gene Set Enrichment Analysis**—✦Abhay Hukku, ; Xiaoquan William Wen, University of Michigan; Corbin Quick, University of Michigan

52 **Bayesian Hierarchical Modeling of Clustered or Longitudinal RNA Sequencing Experiments**—✦Brian Vestal, National Jewish Health; Camille Moore, National Jewish Health; Katerina Kechris, Colorado School of Public Health; Laura Saba, University of Colorado Anschutz Medical Campus; Tasha Fingerlin, National Jewish Health

53 **Probabilistic Inference of Clonal Gene Expression Through Integration of RNA and DNA-Seq at Single-Cell Resolution**—✦Kieran Campbell, University of British Columbia; Sohrab P Shah, BC Cancer Agency; Alexandre Bouchard-CÙté, University of British Columbia

54 **A Hierarchical, Multiple-Testing Framework for High-Dimensional Data Analysis and Application to Flow Cytometry**—✦John Pura

55 **Accurately Modeling Genetic Relatedness in Recombinant Inbred Mice**—✦James Xenakis, University of North Carolina At Chapel Hill

56 **Integrative Analysis of Actively Identified Pathways from Multi-Modal Omics Data**—✦Pei-Li Wang, University of Florida; George Michailidis, University of Florida

57 **Expansion of a stochastic model for assessing CT reinfection risk**—✦Kristin Olson, University of Alabama at Birmingham; William Geisler, University of Alabama at Birmingham; Hemant Tiwari, University of Alabama at Birmingham

58 **Cross Platform Normalization Method Using Matched Sample**—✦Serin Zhang, Florida State University; Jinfeng Zhang, Florida State University; Jiang Shao, Florida State University; Xing Qiu, University of Rochester

59 **Modeling Missingness to Reduce Bias in Single-Cell DNA Methylation Data**—✦Divy Kangeyan, Harvard University; Martin Aryee, Harvard University

60 **The Importance of Missing Value Imputations on Metabolomics Downstream Analyzes**—✦Guy Brock, Ohio State University College of Medicine; Jeremy Gaskins, University of Louisville; Jasmit Shah, Aga Khan University Hospital

61 **Integration of Simultaneous Group Effects in MiRNA and Targeted Gene Sets in Ovarian Cancer**—✦Wenjun He, Dept. Biostatistics, Univ. at Buffalo; Ravikumar Muthuswamy, Center for Immunotherapy, Roswell Park Comprehensive Cancer Center; Daniel Gaile, Dept. of Biostatistics, University at Buffalo; Kevin Eng, Roswell Park Comprehensive Cancer Center

62 **Assessing Reproducibility in Genome Wide Association Studies**—✦Dan McGuire, Penn State College of Medicine

63 **Measure gene - gene dependence using Kullback-Leibler Divergence**—✦Guanjie Chen, Center for Research on Genomics and Global Health, NHGRI, NIH

64 **Bayesian Nonparametric Regressions Regarding Correlated Regions and Its Application for Differentially Methylated Regions**—✦Suvo Chatterjee, Northern Illinois University; Duchwan Ryu, Northern Illinois University; Shrabanti Chowdhury, Icahn School of Medicine at Mount Sinai

65 **A Novel and Adaptive Framework for Testing Gene-Environment Interactions might be Promising in Precision Medicine in Pharmaceutical Industry**—✦Shirong Zhang, Novartis; Juan Pablo Lewinger, University of Southern California

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Contributed Poster Presentations: Section on Statistics in Imaging—Contributed

Section on Statistics in Imaging

Chair(s): Paul McNicholas, McMaster University

Section on Statistics in Imaging

66 **ADAPT: a Dynamic Approach to Probability Thresholding Based on Healthy Controls**—✦Alessandra Valcarcel, University of Pennsylvania; Russell T Shinohara, University of Pennsylvania

67 **A Latent Class Analysis to Identify Subgroups of Heart Failure Under Missingness And/Or Uncertainity in the Indicator Variables**—✦Wendimagegn Alemayehu, University of Alberta; Cynthia M Westerhout, University of Alberta; Jason R Dyck, University of Alberta; Todd Anderson, University of Calgary; Justin A Ezekowitz, University of Alberta

68 **Big Data Visualization: User to Data Scientist**—✦Dylan Martin, Purdue University; Vetria Byrd, Purdue University

69 **Improving Object Detection with Image Preprocessing**—✦Timothy J. Park, Purdue University

70 **Switching Regimes Time Series Models with Application to Changes Brain Connectivity in an fMRI-Movie Experiment**—✦Marco Antonio Pinto-Orellana, Statistics, CEMSE Division. King Abdullah University of Science and Technology; Chee-Ming Ting, King Abdullah University of Science and Technology; Jeremy Skipper, Institute for Multimodal Communication. University College London; †Steven Small, University of California, Irvine; Hernando Ombao, King Abdullah University of Science and Technology

71 **Estimation of the Linearity Point in Graphical Analysis**—✦Anastasia Dmitrienko, Columbia University; Francesca Zanderigo, Columbia University; Yuichi Kimura, National Institute of Radiological Sciences; Robert Todd Ogden, Columbia University

72 **Sparse Clustering for Network Data**—✦Yura Kim, University of Michigan; Elizaveta Levina, University of Michigan

73 **Automatic Extraction of Cell Nuclei from Pathological Images**—✦Brendan Caseria, The University of Texas at Dallas; Alsadig Ali, The University of Texas at Dallas; Yan Cao, The University of Texas at Dallas; Yifei Lou, The University of Texas at Dallas; Guanghua Xiao, The University of Texas Southwestern Medical Center

74 **Analyzing Bias in Object Detection Data Sets**—✦Meera Haridasa, Purdue University; Cailey Farrell, Purdue University

75 **Fast Bayesian Sparse Learning via Thresholding Priors**—✦Andrew Whiteman, University of Michigan; Jian Kang, University of Michigan

76 **Bayesian Nonparametric Estimation of the Spectral Density Function, with Applications to Spectral Analysis of EEG Data**—✦Guillermo Cuauhtemoctzin Granados Garcia, King Abdullah University of Science and Technology; Hernando Ombao, King Abdullah University of Science and Technology; Mark Fiecas, University of Minnesota

77 **An Automated Probabilistic Algorithm for the Detection of Central Vein Sign in Multiple Sclerosis**—✦Jordan Dworkin, University of Pennsylvania; Pascal Sati, National Institute of Neurological Disorders and Stroke; Andrew Solomon, University of Vermont; Dzung Pham, Henry M. Jackson Foundation; Richard Watts, University of Vermont; Melissa Martin, University of Pennsylvania; Daniel Ontaneda, Cleveland Clinic; Matthew K Schindler, National Institute of Neurological Disorders and Stroke; Daniel S Reich, National Institute of Neurological Disorders and Stroke; Russell T Shinohara, University of Pennsylvania

78 **Genetic Analysis of Imaging Data Using Random-Effect Tensor Regression**—✦Tong Shen, University of California, Irvine

79 **Adaptive designs in multi-reader multi-case clinical trials of imaging devices**—✦Weijie Chen, FDA/CDRH; Zhipeng Huang, FDA/CDRH; Lucas Tcheuko, FDA/CTP; Frank Samuelson, FDA/CDRH

537 CC- West Hall B

SPEED: Infectious Disease, Environmental Epidemiology, and Diet—Contributed

Section on Statistics in Epidemiology, Biometrics Section, Section for Statistical Programmers and Analysts

Chair(s): Paul McNicholas, McMaster University

Section on Statistics in Epidemiology

1 **A Weighted Kernel Machine Regression Approach to Environmental Pollutants and Infertility**—✦Zhen Chen, NICHD/NIH; Wei Zhang, BBB/DIPHR/NICHD; Aiyi Liu, BBB/DIPHR/NICHD; Germaine Buck Louis, George Mason University

2 **Multi-Frame Sampling Design for WTCHR**—✦Sukhminder Osahan, NYC DOHMH

3 **Application of Principal Components Analysis to Urine Metal and Metalloid Exposures in the National Health and Nutrition Examination Survey (NHANES) Data**—✦Po-Yung Cheng, CDC; Robert L Jones, CDC; Kathleen L Caldwell, CDC

4 **Statistical Approaches to Assess Early Life Exposure to Complex Mixtures and Associations with Latent Patterns of Neurodevelopmental Trajectories**—✦Shelley H. Liu, Icahn School of Medicine at Mount Sinai; Brent A. Coull, Harvard TH Chan School of Public Health; Robert Wright, Icahn School of Medicine at Mount Sinai

5 **A Data-Driven Approach for Assessing the Risk of Dengue Transmission Using High-Resolution Weather Data**—✦Chathurika Hettiarachchige, IBM Research - Australia; Roslyn Hickson, IBM Research - Australia; Stefan von Cavallar, IBM Research - Australia; Timothy Lynar, IBM Research - Australia; Manoj Gambhir, IBM Research - Australia

6 **Trends of Influenza Vaccination Coverage Among Adult Populations, United States, 2010-2016**—✦Pengjun Lu, CDC/NCIRD/ISD/AB; Mei-Chuan Hung, CDC; Alissa O'Halloran, CDC; Helen Ding, CDC; Walter Williams, CDC; James Singleton , CDC

7 **Longitudinal Regression Trees: An Application to Environmental Exposure and Growth**—✦Brianna Heggeseth, Macalester College; Anna Neufeld, Williams College

8 **Modeling Vertical Transmission of Canine Visceral Leishmaniasis in Foxhounds in the United States**—✦Marie Ozanne, University of Iowa

9 **Comparison Between HIV Routine Testing Data and Sentinel Surveillance Data**—✦Ben Sheng, Pennsylvania State University; Jeffrey Eaton, Imperial College London; Kimberly Marsh, UNAIDS; Mary Mahy, UNAIDS; Le Le Bao, Penn State University

10 **Estimating Efficacies of Supplementary Immunization Activities via Discrete Time Modeling of Disease Incidence Time Series**—✦Qi Dong, University of Washington; Jon Wakefield, Univ of Washington; Kevin McCarthy, Institute for Disease Modeling; Niket Thakkar, Institute for Disease Modeling; Kurt Frey, Institute for Disease Modeling

11 **Causal Inference for Infectious Disease Interventions in Networks**—✦Xiaoxuan Cai, Yale University; Forrest W Crawford, Yale School of Public Health

12 **Online Sequential Monitoring of Disease Incidence Rates with an Application to the Florida Influenza-Like Illness Data**—✦Kai Yang, University of Florida; Peihua Qiu, University of Florida

13 **Incidence, Latency, and Survival of Cancer After World Trade Center Exposure -- Implementing a Large Epidemiologic Study Involving Many Data Sources**—✦Charles B Hall, Albert Einstein College of Medicine; Rachel Zeig-Owens, Albert Einstein College of Medicine; Amy R. Kahn, Bureau of Cancer Epidemiology, New York State Department of Health; James Cone, World Trade Center Health Registry, New York City Department of Health and Mental

Hygiene; Jiehui Li, World Trade Center Health Registry, New York City Department of Health and Mental Hygiene; Mark Farfel, World Trade Center Health Registry, New York City Department of Health and Mental Hygiene; Robert Brackbill, World Trade Center Health Registry, New York City Department of Health and Mental Hygiene; Paolo Boffetta, Icahn School of Medicine at Mount Sinai

Biometrics Section

14 **Estimation of Outcome Trajectory Using Inverse Probability of Censoring Weighting When Data Are Missing Not at Random**—✦Dustin Rabideau, Harvard T.H. Chan School of Public Health; Constantin T. Yiannoutsos, Indiana University Fairbanks School of Public Health; Ronald J. Bosch, Center for Biostatistics in AIDS Research, Harvard T.H. Chan School of Public Health; Judith Lok, Harvard T.H. Chan School of Public Health

Section for Statistical Programmers and Analysts

15 **Impact of Distance Calculation Methods on Geospatial Analysis of Healthcare Access**—✦Sarah Lotspeich, Vanderbilt University; Robert E. Johnson, Vanderbilt University

Section on Statistics in Epidemiology

16 **Creating a Composite Score for Physical Activity Using Shape Constrained Additive Model**—✦Eli Kravitz, Texas A&M Statistics; Raymond J. Carroll, Texas A & M University; Sarah Keadle, California Polytechnic State University

17 **Supervised Robust Profile Clustering**—✦Briana Stephenson, University of North Carolina at Chapel Hill; Amy H Herring, Duke University Statistical Science; Andrew Olshan, University of North Carolina at Chapel Hill

18 **On the Impact of Empty Clusters in Transgenerational Studies**—✦Glen McGee, Harvard University; Marianthi-Anna Kioumourtzoglou, Columbia University; Marc Weisskopf, Harvard University; Sebastien Haneuse, Harvard T.H. Chan School of Public Health; Brent A. Coull, Harvard TH Chan School of Public Health

WEDNESDAY

538 CC- West Hall B

SPEED: Predictive Analytics with Social/Behavioral Science Applications: Spatial Modeling, Education Assessment, Population Behavior, and the Use of Multiple Data Sources—Contributed

Social Statistics Section, Section on Statistics in Imaging, Survey Research Methods Section

Chair(s): Paul McNicholas, McMaster University

Social Statistics Section

21 **Imputing Missing Data from Non-Consent to Record Linkage**—✦Jonathan Gessendorfer, Institute for Employment Research; Jonas Beste, Institute for Employment Research; J^rg Drechsler, Institute for Employment Research; Joseph Sakshaug, German Institute for Employment Research

22 **Supplemental Nutrition Assistance Program (SNAP) Integrity Monitoring**—✦Zhicong Zhao,

23 **How to Implement Empirical Results of Complex Longitudinal Analysis Models into Microsimulation and Test the Sensitivity of Such Implementations**—✦Dawid Bekalarczyk, ; Petra Stein, University of Duisburg-Essen

24 **Estimating the Size of a Hidden Finite Set: Large-Sample Behavior of Estimators**—✦Si Cheng, Yale School of Public Health; Daniel J. Eck, ; Forrest W Crawford, Yale School of Public Health

25 **Spatial Proximity Between Bank Branch Closures and Openings: Where Are the New Underserved Banking Areas Located?**—✦Anna Tranfaglia

26 **A Multidimensional Array Model for Religiosity**—✦Guangyu Tong, Duke University

27 **Challenges from Modeling Open Online Assessment Data**—✦Yan Liu, The University of British Columbia; Henrike Besche, Harvard Medical School; Xingyu Zhang, The Hong Kong University of Science and Technology; Edward Kroc, The University of British Columbia; Melanie Stefan, Edinburgh Medical School; Johanna Gutlerner, Harvard Medical School; Chanmin Kim, Boston University School of Public Health

28 **A Spatially Correlated Auto-Regressive Model for Count Data with Applications for Modeling Crime**—✦Nicholas Clark, Iowa State University; Philip M Dixon, Iowa State University

Section on Statistics in Imaging

29 **Matrix Linear Discriminant Analysis**—✦Wei Hu, University of California, Irvine

Social Statistics Section

30 **Replicate Weights for Variance Estimation of Subnational Areas**—✦Stephanie Zimmer, RTI International; Marcus Berzofsky, RTI International; Andrew Moore, RTI International

31 **Model-Based Socio-Economic Health Measures Using Causal Modeling**—✦F. Swen Kuh, Australian National University; Anton H. Westveld, Australian National University; Grace S Chiu, Australian National University

32 **A Monte Carlo Simulation of the Effects of Ignoring Measurement Non-Invariance on the Standard Error for Mean Difference Testing**—✦Scott Colwell, University of Guelph; Theodore J Noseworthy, York University

33 **An Algebraic Approach to Categorical Data Fusion for Population Size Estimation**—✦Ann Johnston, Penn State University; Aleksandra Slavkovic, Pennsylvania State University

34 **WORKING LIFE EXPECTANCY of MAJOR LEAGUE PITCHERS and FORECASTING the NUMBER of THEM: TASKS MADE EASY by USING the COHORT CHANGE RATIO METHOD**—✦David Swanson, University of California Riverside; Jeff Tayman, University of California San Diego; Lucky Tedrow, Western Washington University; Jack Baker, Health Fitness Corporation

35 **Modeling Person-Specific Development of Math Skills in Continuous Time**—✦Lu Ou, ACTNext by ACT

36 **Spatial Autocorrelation and Schelling Models of Residential Segregation**—✦Terrence Gilchrist, Columbia University

37 **Changing Trends in Legal Immigration - a Study of New U.S. Persons' Settling Pattern in Metropolitan Areas**—Jiashen You, Office of Immigration Statistics, DHS

Survey Research Methods Section

38 **Path Analysis of Personality and Physiologic Pathways in Muscle Strength Decline**—✦An-Lin Cheng, University of Missouri, Kansas City, School of Medicine

Social Statistics Section

39 **Gaussian Variational Estimation for Multidimensional Item Response Theory**—✦April Eun Cho, University of Michigan; Gongjun Xu, University of Michigan

40 **Collaborative Problem Solving Education in Global Perspective: The Evidence from PISA**—✦Mack Shelley, Iowa State University; Senay Purzer, Purdue University

Contributed Poster Presentations 11:35 a.m.—12:20 p.m.

539 CC- West Hall B

SPEED: Bayesian Methods and Applications in the Life and Social Sciences—Contributed

Section on Bayesian Statistical Science, ENAR

Chair(s): Paul McNicholas, McMaster University

Section on Bayesian Statistical Science

1 **Simulation-Based Bayesian Optimal Design for Ice Sheet Borehole Experiments**—✦Xun Huan, Sandia National Labs/California; Andrew D. Davis, Massachusetts Institute of Technology

2 **A Bayesian Meta-Analysis to Adjust Diagnostics Tests for Trend Analysis of Clostridium Difficile Infection in the Emerging Infections Program, U. S**—✦Yi Mu, Centers for Disease Control and Prevention

3 **Blocking Collapsed Gibbs Sampler for Latent Dirichlet Allocation Models**—✦Xin Zhang, Pfizer (China) Research and Development Co., Ltd.; Scott Sisson, University of New South Wales

4 **Dirichlet Process Clustering for the Prediction of Housing Prices**—✦Matt Slifko, Virginia Tech; Scotland Leman, Virginia Tech; David Bieri, Virginia Tech

5 **A Novel Bayesian PK/PD Model for Synergy: Challenges and Opportunities for Sequential Knowledge Integration**—✦Fabiola La Gamba, ; Tom Jacobs, Janssen R&D; Helena Geys, Janssen R&D; Christel Faes, Hasselt University

6 A Multivariate Probit Model for Learning Trajectories with Application to Classroom Assessment—✦Yinghan Chen, University of Nevada, Reno; Steven Culpepper, University of Illinois at Urbana-Champaign

7 **Identifying and Clustering Stable and Dynamic CpG Sites via Bayesian Analysis**—✦Luhang Han, University of Memphis; Hongmei Zhang, University of Memphis; Ebenezer Olusegun George, University of Memphis; Wilfried Karmaus, University of Memphis; Hasan Arshad , University of Southampton; John Holloway, University of Southampton

8 **Bayesian Spatial Quantile Regression for Areal Count Data, with Application on Substitute Care Placements in Texas**—✦Clay King, Colorado Mesa University; Joon Jin Song, Baylor University

ENAR

9 **Variable Selection and Cluster Identification Using Mixture of Regression Trees**—✦Emanuele Mazzola, Dana-Farber Cancer Institute; Mahlet Tadesse, Georgetown University; Giovanni Parmigiani , Harvard T.H. Chan School of Public Health / Dana-Farber Cancer Institute

Section on Bayesian Statistical Science

10 **Calibrating a Stochastic Agent Based Model Using Quantile-Based Emulation**—✦Arindam Fadikar, Virginia Tech; David Higdon, Virginia Tech

11 **Bayesian Non-Negative Matrix Factorization for Analyzing Co-Location Networks**—✦Wenna Xi, The Ohio State University; Catherine Calder, The Ohio State University; Christopher Browning, The Ohio State University

12 **Bayesian High-Dimensional Multi-Outcome Regression with Tree-Structured Shrinkage**—✦Emma Grace Thomas, Harvard T.H. Chan School of Public Health; Francesca Dominici, Harvard T. H. Chan School of Public Health; Giovanni Parmigiani , Harvard T.H. Chan School of Public Health / Dana-Farber Cancer Institute; Lorenzo Trippa, Harvard

13 **A Variational Bayes Approach to Clustered Latent Preference Models for Directed Network Data**—✦Jaron Lee, Australian National University

14 **Bayesian Adaptive Design of Phase 2 Dose-Finding Study**—✦Tanya Granston, CTI BioPharma Corp.; Huafeng Zhou, CTI BioPharma Corp.; Lixia Wang, CTI BioPharma Corp.

15 **Bayesian Analysis of High-Dimensional Point Pattern Data Sets Using Latent Multivariate Log-Gamma Random Vectors**—✦Heli Gao, Florida State University

16 **One Direction? On the Modeling of Circular Data Using Projected Normal Distributions**—✦Jolien Cremers, Utrecht University; Irene Klugkist, Utrecht University

17 **A Bayesian Shape Invariant Growth Model to Evaluate the Effect of Stimulant Medication on Growth of Children with ADHD**—✦Mohammad Bhuiyan, University of Cincinnati; Heidi Sucharew, Cincinnati children's Hospital and Medical Center; Md Monir Hossain, Cincinnati Children's Hospital and Medical Center

18 **Bayesian Analysis of Unrelated Question Design for Correlated Sensitive Questions from Small Areas**—✦Yuan Yu

19 **An Empirical Bayes Method to Estimate Interaction Intensities and Identify Long-Range Chromosomal Interactions Based on Hi-C Data**—✦Zheng Xu, University of Nebraska-Lincoln; Qi Zhang, University of Nebraska-Lincoln

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

540 CC- West Hall B

SPEED: Clinical Trial Design, Longitudinal Analysis, and Other Topics in Biopharmaceutical Statistics—Contributed

Biopharmaceutical Section

Chair(s): Paul McNicholas, McMaster University

Biopharmaceutical Section

21 **A Stagewise Prognostic Control Predictive Approach (SPCPA) for Subgroup Identification and Its Application in a Phase II Study**—✦Wanying Li, Gilead Sciences; Wangshu Zhang, Gilead Sciences; Lovely Goyal, Gilead Sciences; Yuanyuan Xiao, Gilead Sciences

22 **A Novel Blind Start Study Design to Investigate Vestronidase Alfa for Mucopolysaccharidosis VII, an Ultra-Rare Genetic Disease**—✦Wenjie Song, Ultragenyx Pharmaceutical Inc; Chao-Yin Chen, Ultragenyx Pharmaceutical Inc; Christine Haller, Ultragenyx Pharmaceutical Inc; Emil Kakkis, Ultragenyx Pharmaceutical Inc

23 **Statistical Models for Longitudinal Analysis of Preclinical Efficacy Screens**—✦William Forrest, Genentech, Inc; Bruno Alicke, Genentech; Oleg Mayba, Genentech; Alice Starr, Genentech

24 **Treatment Effect Estimation in Subgroups: a Comparative Study**—✦Weihua Cao, Novartis Pharmaceutical Corp; Bjoern Holzhauer, Novartis Pharma AG; Steffen Ballerstedt, Novartis Pharma AG; Dong Xi, Novartis Pharmaceuticals; Ieuan Jones, Novartis Pharma AG

25 **Sample Size Formulae and Application for the Two-Stage Continual Reassessment Method (CRM)**—✦Cody Chiuzan, Columbia University; Ying Kuen Ken Cheung, Columbia University; Zilan Chai, Columbia University

26 **Single Item Analysis of Patient Reported Outcome Measures in a Phase III Randomized Controlled Trial**—✦Stacie Hudgens, Clinical Outcome Solutions; Lysbeth Floden, Clinical Outcome Solutions

27 **Longitudinal Dose-Response Surface to Handle Non-Monotone Continuous Outcomes**—✦Ran Duan, Eli Lilly and Company; Yongming Qu, Eli Lilly and Company; Pandurang Kulkarni, Eli Lilly & Company

28 **Incorporating Intermediate Binary Responses into Interim Analysis of a Long-Term Binary Endpoint**—✦Jingjing Chen, Takeda Pharmaceuticals; Tina Liu, Takeda Pharmaceuticals; Cong Han, Takeda Pharmaceuticals; Xiaopan Yao, Takeda Pharmaceuticals

29 **MMRM Estimates Consideration for Longitudinal Data in Clinical Trials**—✦Zheng (Jason) Yuan, Vertex Pharmaceuticals; Chenkun Wang, Vertex Pharmaceuticals; Yaohua Zhang, Vertex Pharmaceuticals; Bingming Yi, Vertex Pharmaceuticals

30 **Further Extensions of the Two-Stage Randomized Trial Design for Testing Treatment, Self-Selection and Treatment Preference Effects to Include Count Outcomes**—✦Denise Esserman, Yale University; Yu Shi, Yale University

31 **Sample Size Estimation for Stratified Cluster Randomized Trials with Binary Outcomes**—✦Lee Kennedy-Shaffer, Harvard University; Michael David Hughes, Harvard University

32 **Estimation of Peak Expiratory Flow Under Stochastic Differential Equations**—✦Shan Yang, Merck & Co Inc

33 **A Novel Confidence Interval for a Single Proportion in the Presence of Clustered Binary Outcome Data**—✦Meghan Short, Boston University School of Public Health; Joseph M. Massaro, Boston University

34 **Analysis of Multiple Thresholds in a Responder Analysis of Patient Reported Outcome Measures**—✦Lysbeth Floden, Clinical Outcome Solutions; Melanie L Bell, University of Arizona; Stacie Hudgens, Clinical Outcome Solutions

35 **A Two-Stage, Phase II Clinical Trial Design with Nested Criteria for Early Stopping and Efficacy: Expected Trial Duration and Tools for Planning**—✦Michelle DeVeaux, Regeneron Pharmaceuticals; Michael John Kane, Yale University; Daniel Zelterman, Yale University

36 **Assessing MCP-Mod Relative to Pairwise Comparisons and Trend Tests in Dose-Ranging Design and Analysis**—✦Anran Wang, Merck & Co Inc; Fang Liu, Merck & Co., Inc; Sammy Yuan, Merck; Man (Mandy) Jin, Merck & Co., Inc.; Meihua Wang, Merck & Co.; Akshita Chawla, Merck & Co Inc; Pranab Kumar Mitra, Merck & Co Inc; Robin Mogg, Merck Research Laboratories

37 **Exposure-Response Analysis with Random Forest**—✦Zifang Guo, Merck; Thomas Jemielita, Merck & Co.; John Kang, Merck

38 **Statistical Considerations of Single Pivotal Vs Two Replicated Confirmatory Studies**—✦Zijiang Yang, Janssen R&D

39 **Reducing the Effects of Misclassification in Sequential Multiple Assignment Randomized Trials (SMART)**—✦Jun He, Virginia Commonwealth University; Donna McClish, Virginia Commonwealth University; Roy T Sabo, Virginia Commonwealth University

WEDNESDAY

Invited Sessions 2:00 p.m.—3:50 p.m.

554 CC-West 301

■ ● Deep Learning and Statistical Modeling with Applications—Invited

Biometrics Section, Section on Statistics in Imaging, Section on Statistical Learning and Data Science, SSC

Organizer(s): Hongtu Zhu, University of Texas M.D. Anderson

Chair(s): Chuanhai Liu, Purdue University

2:05 p.m. Deep Learning in Quantitative Imaging Analysis—✦Hongtu Zhu, University of Texas M.D. Anderson

2:30 p.m. Cooperative Learning of Deep Energy-Based Model and Latent Variable Model via MCMC Teaching—✦Ying Nian Wu, UCLA

2:55 p.m. Think Deeper with Deep Learning—✦Saratendu Sethi, SAS Institute Inc.

3:20 p.m. Weight Normalized Deep Neural Networks—✦Xiao Wang Purdue University; Yixi Xu, Purdue University

3:45 p.m. Floor Discussion

555 CC-West 224

■ ● Using Surveys to Improve the Representativeness of Nonprobability Samples in Epidemiologic Studies—Invited

Section on Statistics in Epidemiology, Survey Research Methods Section, Biometrics Section

Organizer(s): Yan Li, University of Maryland at College Park

Chair(s): Yan Li, University of Maryland at College Park

2:05 p.m. Combining Probability and Non-Probability Samples: Theory and Practice—✦Michael Elliott, University of Michigan; Richard Valliant, University of Michigan; Jack Chen, SurveyMonkey

2:30 p.m. A Kernel Weighting Approach to Improve Population Representativeness of Epidemiological Cohort in the Analysis—✦Lingxiao Wang, The Joint Program in Survey Methodology, University of Maryland, College Park; Barry Ira Graubard, National Cancer Institute; Hormuzd A. Katki, Biostatistics Branch, Division of Cancer Epidemiology & Genetics, National Cancer Institute; Yan Li, University of Maryland at College Park

2:55 p.m. Evaluating Disease Prediction Models Using a Cohort Whose Covariate Distribution Differs from That of the Target Population—✦Alice S Whittemore, Stanford University

3:20 p.m. Population-Based Disease Risk Prediction Modeling Using National Survey, Clinical, and Registry Data: Application to Risk Prediction for Oropharyngeal Cancer in the US Population—✦Barry Ira Graubard, National Cancer Institute; Anil Chaturvedi, National Cancer Institute; Joseph Tota, National Cancer Institute; Hormuzd A. Katki, Biostatistics Branch, Division of Cancer Epidemiology & Genetics, National Cancer Institute

3:45 p.m. Floor Discussion

556 CC-West 122

The State of Peer-Review and Publication in Statistics and the Sciences—Invited

ENAR, Committee on Publications, Scientific and Public Affairs Advisory Committee, SSC

Organizer(s): Ryan Martin, North Carolina State University

Chair(s): Ryan Martin, North Carolina State University

2:05 p.m. A World Without Referees—✦Larry Wasserman, Carnegie Mellon University

2:30 p.m. How Publishing Peer Review Histories Alongside Articles Promotes Ethical Publishing Practices—✦Corina Logan, Max Planck Institute for Evolutionary Anthropology

2:55 p.m. Continuous Improvement in Academic Publishing—✦Hal Stern, University of California, Irvine

3:20 p.m. Disc: Harry Crane, Rutgers

3:45 p.m. Floor Discussion

557 CC-West 306

■ ● Affordable Clinical Trials Through Innovative Technology—Invited

Caucus for Women in Statistics, Society for Clinical Trials, Biometrics Section

Organizer(s): Dong-Yun Kim, NHLBI/NIH

Chair(s): Dong-Yun Kim, NHLBI/NIH

2:05 p.m. Adaptive Design of Affordable Clinical Trials Using Master Protocols in the Era of Precision Medicine—✦Tze Leung Lai, Stanford University

2:35 p.m. Achieving Regulatory Approvals Without a Randomized Control Study in Rare Infectious Disease—Masanori Ito, Astellas Pharma; ✦Misun Yu Lee, Astellas Pharma

3:05 p.m. Real-Time, Within-Person Randomization Using a Bandit Algorithm in a Clinical Trial—✦Susan Murphy, Harvard University

2:55 p.m. Disc: Nancy Geller, NHLBI/NIH

3:35 p.m. Floor Discussion

558 CC-West 212

● Innovations in Teaching Undergraduate Probability—Invited

Section on Statistical Education, Section on Teaching of Statistics in the Health Sciences, Section on Risk Analysis

Organizer(s): Dennis L Sun, Cal Poly and Google

Chair(s): Dennis L Sun, Cal Poly and Google

2:05 p.m. Teaching Probability via Stories and Mistakes—✦Joseph Blitzstein, Harvard University

2:25 p.m. A Simulation-Based Approach to Teaching Probability Using the Symbulate Package—✦Kevin J Ross, Cal Poly; Dennis L Sun, Cal Poly and Google

2:45 p.m. Teaching Markov Chains Using Java Applets—✦Jeffrey S Rosenthal, University of Toronto

3:05 p.m. Using Texas Hold 'Em Examples to Teach Probability—✦Frederic Paik Schoenberg, UCLA

3:25 p.m. Disc: Amy Wagaman, Amherst College

3:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

559 CC-West 208

■ Preferential Sampling of Environmental and Ecological Processes—Invited

Section on Statistics and the Environment, The International Environmetrics Society, JABES-Journal of Agricultural, Biological, and Environmental Statistics, Survey Research Methods Section

Organizer(s): Trevor Hefley, Kansas State University

Chair(s): Trevor Hefley, Kansas State University

2:05 p.m. Modeling Imperfect Presence Data Obtained by Citizen Science—✦Kerrie Mengersen, Queensland University of Technology

2:30 p.m. Integrating Auxiliary Data in Optimal Spatial Design for Species Distribution Mapping—Jonathan Stallings, North Carolina State University; ✦Brian Reich, North Carolina State University; Krishna Pacifici, North Carolina State University

2:55 p.m. Using Joint Models of Fisher Targeting and Resource Abundance to Account for Preferential Sampling in Fisheries—✦James Turner Thorson, Northwest Fisheries Science Center, National Marine Fisheries Service, NOAA; Paul Conn, Marine Mammal Laboratory, Alaska Fisheries Science Center, NOAA, NMFS; Devin Johnson, Alaska Fisheries Science Center (NOAA); John Best, School of Aquatic and Fishery Sciences, University of Washington

3:20 p.m. Model-Based Sampling Design for Multivariate Spatial Prediction on a Stream Network—✦Dale Zimmerman, American Statistical Association

3:45 p.m. Floor Discussion

560 CC-East 19

■ ● Staying Statistically Relevant: Keep Your Skills Sharp!—Invited

Section on Statistical Consulting, Section on Statistical Education, Section on Teaching of Statistics in the Health Sciences

Organizer(s): Adin-Cristian Andrei, Northwestern University

Chair(s): Peter John De Chavez, PepsiCo

2:05 p.m. Do as I Say, Not as I Do: Learning from My Mistakes as a Statistical Collaborator—✦Richard De Veaux, Williams College

2:25 p.m. Data for Good: Staying Sharp While Giving Back—✦David Corliss, Peace-Work

2:45 p.m. An Old Dog Self-Teaching New Tricks—✦Mithat Gonen, Memorial Sloan Kettering Cancer Center

3:05 p.m. Project Redux: If I Knew Then What I Know Now—✦Mary J Kwasny, Northwestern University

3:25 p.m. Disc: Adin-Cristian Andrei, Northwestern University

3:45 p.m. Floor Discussion

561 CC-West 217

■ ● Hierarchical Bayes in a Hierarchical Universe—Invited

Section on Bayesian Statistical Science, Astrostatistics Special Interest Group, Section on Physical and Engineering Sciences

Organizer(s): Gwendolyn Marie Eadie, University of Washington; Yen-Chi Chen, University of Washington

Chair(s): Yen-Chi Chen, University of Washington

2:05 p.m. The Scientific Context of Astrostatistics: An Overview of the Hierarchical Universe—✦Gwendolyn Marie Eadie, University of Washington

2:25 p.m. Astrophysical Deconvolution When the Convolution Function Is Imprecise—✦David A van Dyk, Imperial College London

2:45 p.m. Insights into Exoplanet Compositions from Hierarchical Bayesian Modeling—✦Angie Wolfgang, Pennsylvania State University; Eric D. Lopez, NASA Goddard; Anirban Mondal, Case Western Reserve University

3:05 p.m. Hierarchical Bayesian Models for Supernovae and Cosmology—✦Kaisey Stephen Mandel, University of Cambridge

3:25 p.m. Hierarchical Bayes in High Energy Astrophysics—✦Aneta Siemiginowska, Harvard-Smithsonian Center for Astrophysics

3:45 p.m. Floor Discussion

562 CC-West 304/305

■ Integrating Neuroimaging and Genomics Data—Invited

Section on Statistics in Imaging, Section on Statistics in Genomics and Genetics, Section on Statistical Learning and Data Science, SSC

Organizer(s): Elizaveta Levina, University of Michigan

Chair(s): Elizaveta Levina, University of Michigan

2:05 p.m. Genetic Correlations Between Imaging Traits and Common Diseases—✦Hongyu Zhao, Yale

2:30 p.m. Combining (Epi)Genetic and Imaging Data with Multivariate Data-Driven Models—✦Vince Calhoun, The Mind Research Network & The University of New Mexico

2:55 p.m. Using Omics Data to Guide Network Classification in Neuroimaging Studies of Brain Diseases—✦Jean Yee Hwa Yang, University of Sydney, Australia; Elizaveta Levina, University of Michigan; Mengbo Li, University of Sydney; Jes˙s Arroyo , University of Michigan; Daniel A. Kessler, University of Michigan

3:20 p.m. Disc: Hongtu Zhu, University of North Carolina

3:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

563 CC-West 206/207

■ ● Mechanisms of Interference: New Strategies for Identification and Estimation—Invited

Social Statistics Section, Statistics and Public Policy, IMS, SSC

Organizer(s): Forrest W Crawford, Yale School of Public Health; Fredrik S‰vje, Yale University

Chair(s): Jasjeet Sekhon, UC Berkeley

2:05 p.m. Identification and Estimation of Treatment and Interference Effects in Observational Studies on Networks—✦Laura Forastiere, Yale; Edoardo M Airoldi , Harvard University

2:25 p.m. Causal Inference Under Unmodeled and All-Encompassing Interference—✦Fredrik S‰vje, Yale University

2:45 p.m. Exact Conditional Randomization Tests for Causal Effects Under Interference—✦Panagiotis Toulis, University of Chicago; Avi Feller, UC Berkeley; Guillaume Basse, Harvard University

3:05 p.m. Estimation of Contagion Effects in Households and Other Networks—✦Forrest W Crawford, Yale School of Public Health; Wen Wei Loh, Ghent University

3:25 p.m. Disc: David Choi, Carnegie Mellon University

3:45 p.m. Floor Discussion

564 CC-West Ballroom A

Medallion Lecture II—Invited

IMS

Organizer(s): Sayan Mukherjee, Duke University

Chair(s): T. Tony Cai, The Wharton School, University of Pennsylvania

2:05 p.m. Statistical Analysis of Large Tensors—✦Ming Yuan, Columbia University

3:45 p.m. Floor Discussion

565 CC-West 109

JASA Applications and Case Studies—Invited

JASA, Applications and Case Studies

Organizer(s): Montserrat Fuentes, Virginia Commonwealth University

Chair(s): Montserrat Fuentes, Virginia Commonwealth University

2:05 p.m. Bayesian Hierarchical Multi-Population Multistate Jolly¨Seber Models with Covariates: Application to the Pallid Sturgeon Population Assessment Program—✦Guohui Wu, SAS Institute Inc.; Scott H. Holan, University of Missouri/U.S. Census Bureau

2:30 p.m. Robust Treatment Comparison Based on Utilities of Semi-Competing Risks in Non-Small-Cell Lung Cancer—✦Thomas Murray, University of Minnesota; Ying Yuan, University of Texas M.D. Anderson Cancer Center; Peter F. Thall, The University of Texas MD Anderson Cancer Center; Sarah McAvoy, The University of Texas MD Anderson Cancer Center; Daniel R. Gomez, The University of Texas MD Anderson Cancer Center

2:55 p.m. On the Reproducibility of Psychological Science—✦Val Johnson, Texas A&M University; Richard Payne, Texas A&M University; Tianying Wang, Texas A & M University; Alex Asher, Texas A&M University; Soutrik Mandel, Texas A&M University

3:20 p.m. Bayesian Phase I/II Biomarker-Based Dose Finding for Precision Medicine with Molecularly Targeted Agents—Beibei Guo, Louisiana State University; ✦Ying Yuan, University of Texas M.D. Anderson Cancer Center

3:45 p.m. Floor Discussion

566 CC-West 215/216

Nonparametrics on Graphs—Invited

IMS, Section on Statistical Learning and Data Science, Section on Nonparametric Statistics, SSC

Organizer(s): Ryan Tibshirani, Carnegie Mellon University

Chair(s): Edward Kennedy, Carnegie Mellon University

2:05 p.m. Signal Processing Over Graphs: Methods and Applications—✦James Sharpnack, UC Davis

3:45 p.m. Floor Discussion

Invited Panels 2:00 p.m.—3:50 p.m.

567 CC-West 211

■ ● Are We (Academia) Producing Leaders with Necessary Statistical Skills?—Invited

Mu Sigma Rho, International Indian Statistical Association, Korean International Statistical Society

Organizer(s): Charles Eugene Smith, North Carolina State University

Chair(s): Charles Eugene Smith, North Carolina State University

Panelists: ✦Christine Franklin, Univ. of Georgia, American Statistical Association K-12 Ambassador,

✦Mark Daniel Ward, Purdue University

✦Amarjot Kaur, Merck & Co.

✦Donsig Jang, NORC at the University of Chicago

✦Sunhee Kwon Ro, BeiGene Pharmaceuticals

✦Gang Li, Johnson & Johnson

3:40 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

568 CC-West 118

■ ● Leadership in Quantitative Sciences in the Pharmaceutical Industry Panel Discussion—Invited

Biopharmaceutical Section, Health Policy Statistics Section, Committee on Applied Statisticians

Organizer(s): Amit Bhattacharyya, ACI Clinical

Chair(s): Sandeep Menon, Pfizer

Panelists: ✦Lisa LaVange, University of North Carolina
✦Nevine Zariffa, AstraZeneca
✦Pandurang Kulkarni, Eli Lilly & Company
✦Kannan Natarajan, Pfizer
✦Lisa Lupinacci, Merck
✦Cyrus Hoseyni, Janssen
✦Amit Bhattacharyya, ACI Clinical

3:40 p.m. Floor Discussion

Topic Contributed Sessions 2:00 p.m.—3:50 p.m.

569 CC-West 121

■ ● Theory and Practice for Addressing Asymmetric Measures in Statistical Modeling—Topic Contributed

WNAR, Biometrics Section, International Chinese Statistical Association

Organizer(s): Ying Lu, Stanford University; Milan Stehlik, Johannes Kepler University and University of Valparaiso

Chair(s): Lu Tian, Stanford University School of Medicine

2:05 p.m. On Modeling of Asymmetric Dependencies—✦Milan Stehlik, Johannes Kepler University and University of Valparaiso

2:25 p.m. Dependencies in Binary Regression Data Generated by Informed Sequential Dose Allocation—✦Nancy Flournoy, University of Missouri; Assaf Oron, Instutue for Disease Modeling

2:45 p.m. Model Selection Criteria Based on Symmetrized Variants of Asymmetric Divergence Measures—✦Joseph Cavanaugh, University of Iowa

3:05 p.m. Disc: Ying Lu, Stanford University

3:25 p.m. Floor Discussion

570 CC-West 222

■ ● New Frontiers of Functional Data Analysis—Topic Contributed

Section on Nonparametric Statistics, Section on Nonparametric Statistics, JASA, Theory and Methods

Organizer(s): Yehua Li, Iowa State University

Chair(s): Shujie Ma, UC Riverside-Dept of Statistics

2:05 p.m. Partially Linear Functional Additive Models for Multivariate Functional Data—✦Yehua Li, University of California, Riverside; Raymond Wong, Texas A&M University; Zhengyuan Zhu, Iowa State University

2:25 p.m. Functional Variance Change Point Analysis for Big Data with an Application to Liver Procurement—✦Pang Du, Virginia Tech; Zhenguo Gao, Virginia Tech; Ran Jin, Virginia Tech; John Robertson, Virginia Tech

2:45 p.m. Semiparametric Modeling of Structured Point Processes Using Multi-Level Log-Gaussian Cox Processes—Yongtao Guan, ; ✦Jingfei Zhang, University of Miami

3:05 p.m. A Functional Dependence Measure for Large Curve Time Series with an Application to Autoregressions—✦Xinghao Qiao, LSE; Shaojun Guo, Renmin University of China

3:25 p.m. Principal Weighted Support Vector Machines for Sufficient Dimension Reduction in Binary Classification—✦Hao Helen Zhang, University of Arizona

3:45 p.m. Floor Discussion

571 CC-West 115

● Statistical Signal Processing Applied to Physical Activity Research—Topic Contributed

Section on Statistical Computing, Section on Statistical Learning and Data Science, Section on Nonparametric Statistics, Quality and Productivity Section

Organizer(s): Marcin Straczkiewicz, School of Public Health-Bloomington, Indiana University

Chair(s): Vadim Zipunnikov, Johns Hopkins Bloomberg School of Public Health

2:05 p.m. A Functional Data Analysis Framework for Objectively Measured Physical Activity by Accelerometers—✦Chongzhi Di, Fred Hutchinson Cancer Research Center

2:25 p.m. Unsupervised Clustering of Physical Activities and Its Application in Health Studies—✦Jiawei Bai, Johns Hopkins University; Ciprian Crainiceanu, Johns Hopkins University

2:45 p.m. Classification of Walking and Stair Climbing Based on Raw Accelerometry Data—✦William Fadel, Indiana University; Jacek K Urbanek, Johns Hopkins University; Steven R Albertson, Indiana University ; Xiaochun Li, Indiana University; Andrea K Chomistek, Indiana University; Jaroslaw Harezlak, Indiana University Bloomington

3:05 p.m. Continuous Movelet Transformation in Application to Individual Walking Strides Segmentation in Accelerometry Data—✦Marta Karas, Johns Hopkins Bloomberg SPH; Jaroslaw Harezlak, Indiana University Bloomington; Marcin Straczkiewicz, School of Public Health-Bloomington,

Indiana University; William Fadel, Indiana University; Ciprian Crainiceanu, Johns Hopkins University; Jacek K Urbanek, Johns Hopkins University

3:25 p.m. Advanced Signal Processing Methods in Walking and Body-Posture Detection in Observational Studies—✦Marcin Straczkiewicz, School of Public Health-Bloomington, Indiana University; Jacek K Urbanek, Johns Hopkins University; Vadim Zipunnikov, Johns Hopkins Bloomberg School of Public Health; Nancy Glynn, University of Pittsburgh Graduate School of Public Health; Tamara Harris, National Institute on Aging; Ciprian Crainiceanu, Johns Hopkins University; Jaroslaw Harezlak, Indiana University Bloomington

3:45 p.m. Floor Discussion

572 CC-West 203

■ ● Measuring Household Wealth in Europe: The Household Finance and Consumption Survey—Topic Contributed

Survey Research Methods Section

Organizer(s): Arthur B Kennickell, Self

Chair(s): Barry W Johnson, IRS Statistics of Income

2:05 p.m. Comparing Non-Response Adjustment Methods in the Panel on Household Finances—✦Panagiota Tzamourani, Deutsche Bundesbank; Julian Sengewald, University of Bamberg

2:25 p.m. Mind the Mode: Lessons from a Web Survey on Household Finances—✦Andrea Neri, Banca d'Italia

2:45 p.m. How Wealthy Are Households - Coherence Between Macro and Micro Statistics—✦Juha Honkkila, European Central Bank

3:05 p.m. Stress Tests of the Household Sector Based on Microdata from Survey and Administrative Sources—✦Tairi Room, Bank of Estonia; Jaanika Merikull, Bank of Estonia

3:25 p.m. The Funtions of Wealth: Renters, Owners and Capitalists Across Europe and the US—✦Pirmin Fessler, ; Martin Sch¸rz, Oesterreichische Nationalbank

3:45 p.m. Floor Discussion

573 CC-West 120

■ ● Design of Experiments for Stochastic Process Models—Topic Contributed

Royal Statistical Society, Section on Bayesian Statistical Science, Quality and Productivity Section

Organizer(s): James McGree,

Chair(s): David Woods, University of Southampton

2:05 p.m. Efficient Construction of Bayes Optimal Designs for Stochastic Process Models—✦Richard Boys, Newcastle University

2:25 p.m. Bayesian Design for Intractable Models—✦Antony Overstall, University of Southampton

2:45 p.m. Developments of the Synthetic Likelihood Approach for Bayesian Design for Models with Intractable Likelihoods—✦James McGree,

3:05 p.m. Optimal Bayesian Design for Models with Intractable Likelihoods via Machine Learning Methods—Christopher C Drovandi, Queensland University of Technology; ✦Markus Hainy, QUT

3:25 p.m. Optimal Design for Queueing Systems: Maximal Information by Appropriate Measurement on Queues—✦Ben Parker, University of Southampton

3:45 p.m. Floor Discussion

574 CC-East 17

■ ● Statistical Inference in Finance—Topic Contributed

Section on Statistics in Marketing, Korean International Statistical Society

Organizer(s): Kiseop Lee, Purdue University

Chair(s): Kiseop Lee, Purdue University

2:05 p.m. High-Dimensional Markowitz Portfolio Optimization Problem: Empirical Comparison of Covariance Matrix Estimators—✦Johan Lim, Seoul National University; Young-Geun Choi, Fred Hutchinson Cancer Research Center; Sujung Choi, Soongsil University

2:25 p.m. Mean Reversion Trading via Penalized Maximum Likelihood Estimation and Optimization—✦Jize Zhang, University of Washington, Seattle; Aleksandr Aravkin, University of Washington, Seattle; Tim Leung, University of Washington, Seattle

2:45 p.m. Nonlinear Factor Decomposition for Financial Data by Deep Generative Model—✦Yongdai Kim, Seoul National University, Korea

3:05 p.m. An Exact Auxiliary- Variable Gibbs Sampler for Stochastic Differential Equations—✦Vinayak P Rao, Purdue University

3:25 p.m. On a Class of Full-Range Tail Dependence Copulas with Insurance Applications—✦Jianxi Su, Purdue University; Lei Hua, Northern Illinois University

3:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

575 CC-West 214

■ Translating Real World Data into Robust Evidence to Inform Decisions on Medical Product Development and Life Cycle Management—Topic Contributed

Section on Medical Devices and Diagnostics, Biopharmaceutical Section

Organizer(s): Weili He, AbbVie

Chair(s): Weili He, AbbVie

2:05 p.m. Evaluating Different Analytic Strategies to Translate Real World Data to Robust Evidence for Decision Making—✦Hongwei Wang, AbbVie Inc; Weili He, AbbVie; Yabing Mai, AbbVie, Inc; Meijing Wu, AbbVie; Dajun Tian, Chiltern

2:25 p.m. Opportunities of Using Real World Data to Inform Regulatory Considerations for Medical Devices—✦Martin Ho, FDA

2:45 p.m. Real World Data Analysis to Inform Clinical Trial Modeling and Simulation—✦Zhaoling Meng, sanofi; Dimple Patel, sanofi; Qi Tang, Sanofi; Nadia Gaudel-Dedieu, sanofi; James Rogers, Metrum Research Group

3:05 p.m. The Use of Real World Data as a Bayesian Prior in a Device Clinical Trial—✦Roseann White, Duke Clinical Research Institute

3:25 p.m. Disc: Mark Levenson, FDA CDER

3:45 p.m. Floor Discussion

576 CC-East 16

■ Advanced Methodological Contributions in Time Series and Forecasting—Topic Contributed

Business and Economic Statistics Section

Organizer(s): Beatriz Etchegaray Garcia, IBM Research

Chair(s): Ines Wilms, KU Leuven

2:05 p.m. Forecasting Consumer Interests from Search Query Data Using Large-Scale, Semiparametric Probabilistic Prediction Algorithms—✦Georg Goerg,

2:25 p.m. Multivariate Bayesian Predictive Synthesis in Macroeconomic Forecasting—✦Knut Are Aastveit, Norges Bank; Kenichiro Mcalinn, Booth School of Business, University of Chicago; Jouchi Nakajima, Bank for International Settlements; Mike West, Duke University

2:45 p.m. Analytical Likelihood Derivatives for State Space Forecasting Models—✦Jonathan R. M. Hosking, Amazon; Ramesh Natarajan, Amazon

3:05 p.m. Robust Time Series Using Linked Exponential Smoothing Cells—✦Aleksandr Aravkin, University of Washington, Seattle; Avner Abrami, IBM TJ Watson Research Center; Younghun Kim, Utopus Insights

3:25 p.m. Statistical Challenges in Forecasting Revenue for a Large-Scale Business—✦Beatriz Etchegaray Garcia, IBM Research

3:45 p.m. Floor Discussion

577 CC-West 110

■ ● Statistical Methods for Interpreting Machine Learning Algorithms - with Implications for Targeting—Topic Contributed

Section on Statistical Learning and Data Science

Organizer(s): DeDe Paul, AT&T Labs Research

Chair(s): Cheryl Flynn, AT&T Labs Research

2:05 p.m. Black-Box Model Explanations: a Study of the Good, the Bad, and the Ugly—✦Patrick Hall, H20.ai

2:25 p.m. An Algorithm for Removing Sensitive Information—✦James Johndrow, Stanford University; Kristian Lum, Human Rights Data Analysis Group

2:45 p.m. Local, Model-Agnostic Explanations of Machine Learning Predictions—✦Sameer Singh, University of California, Irvine

3:05 p.m. Can We Compute an Optimal Sparse Decision Tree?—✦Cynthia Rudin, Duke University; Elaine Angelino, Berkeley; Nicholas Larus-Stone, Cambridge; Margo Seltzer, Harvard; Daniel Alabi, Harvard

3:25 p.m. Beyond Feature Attribution: Quantitative Concept-Based Interpretability with TCAV—✦Been Kim, Google Brain

3:45 p.m. Floor Discussion

578 CC-West 204

Statistical Explorations for the Post-Enumeration Survey of the U.S. 2020 Census—Topic Contributed

Survey Research Methods Section, Government Statistics Section

Organizer(s): Timothy Kennel, U.S. Census Bureau

Chair(s): Vincent Mule, U.S. Census Bureau

2:05 p.m. Evolution of the Modern Post-Enumeration Survey: How Did We Get Here and Where Should We Go Next?—✦Howard Hogan, U. S. Census Bureau

2:25 p.m. Considerations in Designing the 2020 Post-Enumeration Survey Sample—✦Laura A. Davis, US Census Bureau; T. Trang Nguyen, US Census Bureau; Courtney Hill, U.S. Census Bureau

2:45 p.m. Creating a Hard-To-Enumerate Score to Stratify the 2020 Post-Enumeration Survey Sample—✦Krista Heim, U.S. Census Bureau; Courtney Hill, U.S. Census Bureau; T. Trang Nguyen, US Census Bureau; Timothy Kennel, U.S. Census Bureau

3:05 p.m. Using Imputation Methods to Predict Independent Listing Housing Unit Counts for Small Geographies—✦Courtney Hill, U.S. Census Bureau; Timothy Kennel, U.S. Census Bureau; T. Trang Nguyen, US Census Bureau

3:25 p.m. Calibrating Components of Coverage from a Post-Enumeration Survey—✦Timothy Kennel, U.S. Census Bureau

3:45 p.m. Floor Discussion

Topic Contributed Panels 2:00 p.m.—3:50 p.m.

579 CC-East 10

Building Bridges with Industry and Business for Statistical Programs—Topic Contributed

Business Analytics/Statistics Education Interest Group, Section on Statistical Consulting

Organizer(s): Curt Hinrichs, SAS Institute, JMP Division

Chair(s): Scott Toney, Daniels College of Business, University of Denver

Panelists: ✦Sudipta Dasmohapatra, Duke University

✦Mark Morreale, SAS

✦Bill Thomas, Raytheon

✦Nathaniel Payne, Global Relay Communications Inc.

3:40 p.m. Floor Discussion

580 CC-West 210

Federal Statistics, Multiple Data Sources, and Privacy Protection—Topic Contributed

Government Statistics Section, Survey Research Methods Section, Committee on Privacy and Confidentiality

Organizer(s): Brian Harris-Kojetin, National Academy of Sciences

Chair(s): Gina Walejko, U.S. Census Bureau

Panelists: ✦Brian Harris-Kojetin, National Academy of Sciences

✦Frauke Kreuter, Joint Program in Survey Methodology

✦Nancy Kirkendall, National Academies of Sciences, Engineering, and Medicine

✦Peter Miller, Northwestern University

✦Hubert Hamer, National Agricultural Statistics Service

3:40 p.m. Floor Discussion

Contributed Sessions 2:00 p.m.—3:50 a.m.

581 CC-West 114

Recent Advances in High-Dimensional Data Estimation and Prediction—Contributed

Section on Statistical Computing

Chair(s): Chunyan Cai, UT Health Science Center at Houston

2:05 p.m. Improved Robust Estimation of the Residual Scale in High-Dimensional Problems with the Adaptive Elastic Net S-Estimator for Efficient Robust Penalized Linear Regression Methods—✦David Kepplinger, University of British Columbia; Ezequiel Smucler, University of British Columbia; Gabriela V. Cohen Freue, University of British Columbia

2:20 p.m. Inference on the Future State of the Climate Through Combining Multiple Interdependent Climate Model Outputs with Observations Using Bayesian Hierarchical Models—✦Huang Huang, SAMSI; Dorit Hammerling, National Center for Atmospheric Research; Bo Li, University of Illinois at Urbana-Champaign; Richard Smith, Statistical Applied Mathematical Sciences Institute

2:35 p.m. A Fault Prediction Method for Temporal Data—✦Emanuele Gramuglia, University of Oslo

2:50 p.m. Sure Independent Screening for Ultra-high Longitudinal Data —✦Yafei Zhang, Virginia Tech; Pang Du, Virginia Tech

3:05 p.m. Analog Forecasting of Snow Storage in the Western United States Using a Bayesian Hierarchical Framework—✦David Clancy, Colorado State University; Mevin Hooten, Colorado State University

3:20 p.m. Floor Discussion

582 CC-West 223

■ **Random Effects and Mixed Models—Contributed**

Biometrics Section

Chair(s): James P. Howard, II, Johns Hopkins University Applied Physics Laboratory

2:05 p.m. Estimating Subject-Specific Rates of Change from Longitudinal Data—✦Christopher Morrell, Loyola University Maryland; Larry J. Brant, Loyola University Maryland; Majd AlGhatrif, NIA, NIH; Edward G. Lakatta, NIA, NIH

2:20 p.m. Fast Computation of Large-Scale Mixed Effects Models—Norman Matloff, University of California at Davis; ✦Robin Yancey, University of California, Davis

2:35 p.m. Bootstrap Tests Reflecting the Shape of Gradient Function for Assumption of Random Effect Distribution in Generalized Linear Mixed Models—✦Hiroki Sakaguchi,

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Shionogi & Co., Ltd.; Takahiro Hasegawa, Shionogi & Co., Ltd.; Hideaki Watanabe, Shionogi & Co., Ltd.

2:50 p.m. A Shared Parameter Location Scale Mixed Effect Model for EMA Data Subject to Informative Missing—✦Xiaolei Lin, The University of Chicago; Robin Mermelstein, University of Illinois at Chicago; Donald Hedeker, University of Chicago

3:05 p.m. Sparse Grids-Particle Swarm Optimization Algorithm for Finding Bayesian Optimal Designs for Nonlinear Mixed Effect Models—✦Yu Shi, UCLA Biostatistics; Weng Kee Wong, UCLA

3:20 p.m. A Multi-Level Mixed-Effects Model for Individual Participant Data Meta-Analysis with Outcomes from an Exponential Family—✦Ying Zhang, Penn State College of Medicine; Vernon M Chinchilli, Penn State College of Medicine

3:35 p.m. Floor Discussion

583 CC-West 209

■ Statistical Methods in Health Services and Performance Profiling—Contributed

Health Policy Statistics Section

Chair(s): Kwonsang Lee, Harvard University

2:05 p.m. Hospital Profiling for Quality of End-Of-Life Care via Semi-Competing Risks Analysis—✦Kyu Ha Lee, The Forsyth Institute; Sebastien Haneuse, Harvard T.H. Chan School of Public Health

2:20 p.m. Making Ranking Priorities More Explicit—✦Cora Allen-Coleman, University of Wisconsin - Madison; Ronald Gangnon, University of Wisconsin

2:35 p.m. Bayesian Reliability Assessment of Facility-Level Patient Outcome Measures—✦Jianghua He, University of Kansas Medical Center; Nancy Dunton, University of Kansas Medical Center

2:50 p.m. Methods for Population-Adjusted Indirect Comparisons—✦Joseph C Cappelleri, Pfizer Inc

3:05 p.m. Network Meta-Analysis for N-Of-1 Trials with Ordinal Outcomes—✦Youdan Wang, Brown University; Christopher Schmid, Brown University

3:20 p.m. Inter-Facility Transitional Care Management: Social Network Analysis Perspectives—✦Shun Zhang, ; Tim Rimnac, Health Care Services Corporation ; Qianyin Huang, NORC at the University of Chicago

3:35 p.m. Template Matching for Comparing Hospital Performance in Veterans Affairs Health System: a Simulation Study—✦Brenda Vincent, VA Center for Clinical Management Research; Hallie Prescott, VA Center for Clinical Management Research

584 CC-West 218

Advances in Semi- and Nonparametric Statistical Analysis—Contributed

IMS, Section on Nonparametric Statistics

Chair(s): Jonathan Stroud, Georgetown University

2:05 p.m. Asymptotics and Optimal Bandwidth Selection for Nonparametric Estimation of Density Level Sets—✦Wanli Qiao, George Mason University

2:20 p.m. Generalized Semiparametric Approach to One-Way Analysis of Variance—✦Chathurangi Pathiravsan, Southern Illinois University Carbondale; Bhaskar Bhattacharya, Southern Illinois University Carbondale

2:35 p.m. Unified Estimation Methods for Unnormalized Models Using Auxiliary Distributions—✦Masatoshi Uehara, Harvard Unversity; Xiao-Li Meng, Harvard University

2:50 p.m. The Bootstrap in Extreme Value Theory—✦Chen Zhou, De Nederlandsche Bank

3:05 p.m. Nonparametric Empirical Bayes Tweedie's Estimator for Normal Means with Heteroscedastic Errors—✦Luella Fu, USC Marshall School of Business; Gareth James, USC Marshall School of Business; Wenguang Sun, USC Marshall School of Business

3:20 p.m. ESTIMATION of a MONOTONE DENSITY in S-SAMPLE BIASED SAMPLING MODELS—✦Hok Kan Ling, Columbia University; Kwun Chuen Gary Chan, University of Washington; Tony Sit, The Chinese University of Hong Kong; Sheung Chi Phillip Yam, The Chinese University of Hong Kong

3:35 p.m. Jackknife Empirical Likelihood for Time Series Data in Frequency Domain—✦Kenichiro Tamaki, Waseda University

585 CC-West 219

● Recent Advances in Quantile Regression—Contributed

Section on Nonparametric Statistics

Chair(s): Yu Zhou, University of Minnesota

2:05 p.m. Time-Variant Nonparametric Quantile Estimation: One-Step Vs Two-Step Methods—✦Mohammed Chowdhury, Kennesaw State University

2:20 p.m. Average Extreme Regression Quantile and Its Two-Step Version—✦Jana Jureckova, Charles University

2:35 p.m. Extreme Inference of Nonparametric Quantile Regression with Heavy Tailed Data—✦Takuma Yoshida,

2:50 p.m. Functional Quantile Regression in Reproducing Kernel Hilbert Spaces—✦Nan Zhang, Fudan University

3:05 p.m. Variable Selection in Quantile Varying Coefficient Models with Heteroscedastic Error—✦Mohammed Abdulkerim Ibrahim, Hasselt University; Anneleen Verhasselt, Hasselt University

3:20 p.m. Nonparametric Quantile Curves of Health Risk Factors for American Adolescents—✦Jessica Rudd, Kennesaw State University; Mohammed Chowdhury, Kennesaw State University

3:35 p.m. Tests for Patterned Alternatives Using Logarithmic Quantile Estimation—✦Mark Ledbetter, Old Dominion University; Lucia Tabacu, Old Dominion University

586 CC-East 14

Recent Developments in Designs of Experiments and Responses Surface Models—Contributed

Section on Physical and Engineering Sciences, Quality and Productivity Section

Chair(s): Christopher Gotwalt,

2:05 p.m. Utilizing the Block Diagonal Covariance Structure of Nonregular Two-Level Designs—✦Robert Mee, University of Tennessee; David J Edwards, Virginia Commonwealth University

2:20 p.m. Individual Clear Effects for Fractional Factorial Designs—✦William Li, Shanghai Advanced Institute of Finance

2:35 p.m. Predictive Response Surface Models: To Reduce or Not to Reduce?—✦Byran Smucker, Miami University; Maria Weese, Miami University; David J Edwards, Virginia Commonwealth University

2:50 p.m. Dimensional Analysis for Response Surface Methodology—✦Ching-Chi Yang, Penn State; Dennis Lin, Pennsylvania State University

3:05 p.m. Augmenting Definitive Screening Designs for Estimating Second-Order Models—✦Abigael Nachtsheim, Arizona State Univ

3:20 p.m. Optimal Designs for Gamut Models—✦William Heavlin, Google, Inc.

3:35 p.m. Hydraulic Fluids: a Case Study of a Split-Plot Experiment—✦Jennifer Kensler, Shell

587 CC-West 117

Risk Modeling—Contributed

Section on Risk Analysis

Chair(s): Xin Cao, Merck

2:05 p.m. Are Two Risk Predictive Models Discrimination-Equivalent?—✦Shulamith Gross, Baruch College/CUNY

2:20 p.m. Inference on Multiple AUCs Based on the Combination of Multiple Biomarkers—✦Shu-Hui Lin, National Taichung University of Science and Technology

2:35 p.m. Variational EM Type Algorithm Using Divergences:Applications to Privacy Analytics—✦Lei Li, George Mason University; Anand N Vidyashankar, George Mason University

2:50 p.m. The Predictive Risk of Misspecified Quantile Regression—✦Alexander Giessing, University of Michigan; Xuming He, University of Michigan

3:05 p.m. A Coskewness Shrinkage Approach for Estimating the Skewness of Linear Combinations of Random Variables—✦Dries Cornilly, KU Leuven and VUB; Kris Boudt, Vrije Universiteit Brussel; Tim Verdonck, KU Leuven

3:20 p.m. Divergence-Based Risk Measures: a Discussion on Sensitivities and Extensions—✦Meng Xu, Sichuan University; José Miguel Angulo Ib·Òez, University of Granada

3:35 p.m. Add Time Dimension to the Prediction: a Multi-Stage, Sequential Prediction Model—✦Zheng Zhang, Brown University

588 CC-West 202

■ A Mixed Bag of Graphical Delights—Contributed

Section on Statistical Graphics

Chair(s): Isabella R Ghement, Ghement Statistical Consulting Company Ltd.

2:05 p.m. Making Ggplot2 Accessible—✦Paul Murrell, Univ of Auckland; Debra Warren, The University of Auckland; A Jonathon Godfrey, Massey University

2:20 p.m. Dependency Diagnostic: Visually Understanding Pairwise Variable Relationships—✦Kevin Lin, Carnegie Mellon University; Han Liu, Northwestern University

2:35 p.m. Applications of the Mixturegram for Determining the Number of Components in Finite Mixture Models—✦Chenlu Ke, University of Kentucky; Derek S. Young, University of Kentucky; Xiaoxue Zeng, Apple. Inc

2:50 p.m. Plotting Two-Dimensional Confidence Regions—✦Christopher Weld, William & Mary; Lawrence Leemis, William & Mary; Andrew Loh, William & Mary

3:05 p.m. Framed Charts in the 1870 Statistical Atlas—✦Susan VanderPlas, ; Heike Hofmann, Iowa State University

3:20 p.m. A New Approach to Generate Dorling Cartograms—✦Xiaoyue Cheng, University of Nebraska of Omaha

3:35 p.m. Floor Discussion

589 CC-West 116

■ Topics in Data Mining, Forecasting, and Bayesian Inference for National Security—Contributed

Section on Statistics in Defense and National Security, IMS

Chair(s): Kevin Cummiskey, United States Military Academy

2:05 p.m. A Solution to the Forensic Identification of Source Problems Using Fiducial Inference—✦Danica Ommen, Iowa State University; Jan Hannig, University of North Carolina; Jonathan Williams, University of North Carolina

2:20 p.m. Context Modeling by Random Fields for Robust Target Identification from Multi-Modal Sensors—✦Pranab Banerjee, Boston Fusion Corp.

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

2:35 p.m. Optimization of Decision Trees by Delaying the Split Decision—✦Kyle Caudle, South Dakota School of Mines and Technology; Larry Pyeatt, South Dakota School of Mines and Technology; Christer Karlsson, South Dakota School of Mines and Technology; Randy Hoover, South Dakota School of Mines and Technology

2:50 p.m. Text Mining Unstructured Data in the Electronic Medical Record—✦Edwin D'Souza, Leidos; James Zouris, NHRC; Vern F Wing, Leidos

3:05 p.m. Consistent Estimation of the Spectrum of Trace Class Data Augmentation Algorithms—✦Saptarshi Chakraborty, University of Florida; Kshitij Khare, University of Florida

3:20 p.m. A Classification Framework for Forecast Model Selection—✦Thiyanga Talagala, Monash University; Rob J Hyndman, Monash University; George Athanasopoulos, Monash University

3:35 p.m. Floor Discussion

590 CC-West 119

● Missing Data—Contributed

Biopharmaceutical Section

Chair(s): Xiaodong Luo,

2:05 p.m. Degrees of Freedom Adjustment in Mixed Model Repeated Measures Analyzes with Missing Data—✦Michael McDermott, University of Rochester Medical Center; Madhurima Majumder, Bayer Pharmaceuticals

2:20 p.m. Simulation Study in Handing Missing Data Due to Use of Rescue Therapy in Rare Disease—✦Yiwei Zhang, Biogen; Peng Sun, Biogen; Baoguang Han, Biogen; John Zhong, Biogen

2:35 p.m. Bias Reduction in Logistic Regression with Missing Responses When the Missing-Data Mechanism Is Non-Ignorable—✦Vivek Pradhan,

2:50 p.m. Approaches to Tipping Point Analyzes for a Binary Endpoint in Longitudinal Clinical Trials—✦Joseph Wu, Pfizer; Huaming Tan, Pfizer, Inc.; Neal Thomas, Pfizer; Cunshan Wang, Pfizer, Inc.

3:05 p.m. Challenges in Analysis with Data Which Is Censored at Data Lockdown—✦Tammy Massie,

3:20 p.m. Handling Missing Not at Random Data for Safety Endpoint in the Multiple Dose Titration Clinical Pharmacology Trial—✦Li Fan, Merck; Tian Zhao, Merck; Patrick Larson, Merck

3:35 p.m. The Application of Tipping Point Analysis in Clinical Trials—✦HONG DING,

591 CC-West 213

● Synthetic Data and Data Disclosure—Contributed

Government Statistics Section

Chair(s): Amanda Nagle, U.S. Census Bureau

2:05 p.m. Challenges Confronted and Insights Revealed in Synthesizing State-Level Integrated Data—✦Daniel Bonnery, University of Maryland; Michael E Woolley, University of Maryland and Maryland Longitudinal Data System Center; Laura Stapleton, University of Maryland and Maryland Longitudinal Data System Center; Tessa Johnson, University of Maryland and Maryland Longitudinal Data System Center; Angela Henneberger, University of Maryland and Maryland Longitudinal Data System Center; Bess Rose, University of Maryland and Maryland Longitudinal Data System Center; Yi Feng, University of Maryland and Maryland Longitudinal Data System Center; Terry Shaw, University of Maryland and Maryland Longitudinal Data System Center; Yating Zheng, University of Maryland and Maryland Longitudinal Data System Center

2:20 p.m. Finite Sample Inference for Multiply Imputed Synthetic Data Under a Multiple Linear Regression Model—✦Martin Klein, U.S. Census Bureau

2:35 p.m. Differentially Private Multiple Synthesis via an Adaptive Multiplicative Weighting Algorithm—✦Evercita Eugenio, University of Notre Dame; Fang Liu, University of Notre Dame

2:50 p.m. A Top-Down Algorithm for Releasing Differentially Private Hierarchical Multi-Dimensional Contingency Tables with Exact Constraints—✦Robert Ashmead, U.S. Census Bureau; John M Abowd, U.S. Census Bureau; Simson Garfinkel, U.S. Census Bureau; Michael Hay, Colgate University; Dan Kifer, Penn State University ; Philip Leclerc, U.S. Census Bureau; Ashwin Machanavajjhala, Duke University; Ryan McKenna, , University of Massachusetts, Amherst; Gerome Miklau, University of Massachusetts, Amherst; Brett Moran, U.S. Census Bureau; William Sexton, U.S. Census Bureau

3:05 p.m. Pre-Masking Procedure for Grouping Variables in Multivariate Data Sets—✦Anna Oganian, National Center for Health Statistics

3:20 p.m. Preserving Privacy in Person-Level Data for the American Community Survey—✦Michael H. Freiman, U.S. Census Bureau; Rolando A. Rodrìguez, U.S. Census Bureau; Jerome P. Reiter, Duke University; Amy D. Lauger, U.S. Census Bureau

3:35 p.m. Toward an Updated Publication Standard for Official County-Level Crop Estimates—✦Nathan Cruze, USDA National Agricultural Statistics Service; Andreea Erciulescu, National Institute of Statistical Sciences; Habtamu Benecha, USDA National Agricultural Statistics Service; Valbona Bejleri, USDA National Agricultural Statistics Service; Balgobin Nandram, Worcester Polytechnic Institute; Linda J Young, USDA National Agricultural Statistics Service

592 CC-East 9

New Developments in Experiment Design and Statistical Modeling—Contributed

International Chinese Statistical Association, Section on Physical and Engineering Sciences

Chair(s): Kin Yau Wong, Hong Kong Polytechnic University

2:05 p.m. T-Optimal Design for Multivariate Polynomial Regression Using Semidefinite Programming—✦Yuguang Yue, The University of Texas At Austin; Weng Kee Wong, UCLA; Lieven Vandenberghe, University of California, Los Angeles

2:20 p.m. Direct Estimation of Differential Networks Under High-Dimensional Nonparanormal Graphical Models—✦Qingyang Zhang, University of Arkansas

2:35 p.m. On Mean Corrected Generalized Estimating Equations—✦Ye Shen, University of Georiga; Chao Li, University of Georgia

2:50 p.m. Solar Panel Lamination with Extreme Value Regression Model—✦Chih-Chun Tsai, Tamkang University

3:05 p.m. Optimal Doubling Burn-In Policy Based on Tweedie Processes with Applications to Degradation Data—✦Chien-Yu Peng, Institute of Statistical Science, Academia Sinica

3:20 p.m. An Additive-Multiplicative Mean Model for Panel Count Data with Dependent Observation and Dropout Processes—✦Yang Li, UNC-Charlotte; Guanglei Yu, Eli Lilly and Company; Liang Zhu, University of Texas Health Science Center at Houston; Hui Zhao, Central China Normal University; (Tony) Jianguo Sun, University of Missouri; Leslie Robison, St. Jude Children's Research Hospital

3:35 p.m. Methods for Multivariate Recurrent Event Data with Measurement Error and Informative Censoring—✦Yu-Jen Cheng, National Tsing Hua University; Ching-Yun Wang, Fred Hutchinson Cancer Research Center; Hsiang Yu, National Tsing Hua University

593 CC-West 112

Computationally Intensive and Machine Learning Methods—Contributed

Section on Statistical Computing

Chair(s): Nicholas Clark, Iowa State University

2:05 p.m. Robust Outlier Detection for Low and High-Dimensional Neuroimaging Data with Principal Components Analysis and Split-Half Resampling—✦Derek Beaton, Baycrest Health Sciences; Kelly M Sunderland, Baycrest Health Sciences; Abiramy Uthirakumaran, Baycrest Health Sciences; Stephen R Arnott, Baycrest Health Sciences; Robert Bartha, Robarts Research; Sandra E Black, Sunnybrook Health Sciences Centre; Leanne Casaubon, Krembil Research Institute; Morris Freedman, Baycrest Health Sciences; Richard H Swartz, Sunnybrook Health Sciences Centre; Sean Symons, Sunnybrook Health Sciences Centre; ONDRI Investigators, ONDRI; Malcolm A Binns, Baycrest Health Sciences; Stephen C Strother, Baycrest Health Sciences

2:20 p.m. Parallel Multiblock ADMM for Large Scale Optimization Problems—✦Jiawei Wen, Pennsylvania State University

2:35 p.m. Display Advertising: Estimating Conversion Probability Efficiently—✦Abdollah Safari, Simon Fraser University; Rachel MacKay Altman, Simon Fraser University; Thomas Loughin, Simon Fraser University

2:50 p.m. Frequentist Decision-Theoretic Optimal Design with Application to Nonlinear Models—✦Meshayil Alsolmi,

3:05 p.m. Weighted Stochastic Gradient Descent Algorithm—✦Xueying Tang, Columbia University; Zhi Wang, Columbia University; Jingchen Liu, Columbia University

3:20 p.m. New Computational Methods for Non/Semiparametric Quantile Regression Models—✦Bo Kai, College of Charleston; Mian Huang, Shanghai University of Finance and Economics; Weixin Yao, University of California, Riverside; Yuexiao Dong, Temple University

3:35 p.m. Floor Discussion

594 CC-West 111

Methods for Analysis of High-Dimensional Data—Contributed

Section on Statistical Learning and Data Science

Chair(s): Bernard Lee, HedgeSPA Limited

2:05 p.m. The Two-To-Infinity Norm and Singular Subspace Geometry with Applications to High-Dimensional Statistics—✦Joshua Cape, Johns Hopkins; Dept. of Applied Math and Statistics; Minh Tang, Johns Hopkins University; Carey E Priebe, Johns Hopkins University

2:20 p.m. Optimal Quadratic Estimators Using Fourier Transform in the Central Subspaces—✦Jiaying Weng, University of Kentucky; Xiangrong Yin, University of Kentucky

2:35 p.m. On Post Dimension Reduction Statistical Inference—✦Kyongwon Kim, The Pennsylvania State University; Bing Li, The Pennsylvania State University

2:50 p.m. Kernel-Based Nonlinear Dimension Reduction for Automatic Gender Classification—✦Katherine Kempfert, University of Florida; Yishi Wang, University of North Carolina Wilmington; Cuixian Chen, University of North Carolina Wilmington

3:05 p.m. Finding Best Low Dimensional Angles for Visualizing High-Dimensional Data—✦Yanming Di, Oregon State

University; Wanli Zhang, Oregon State University

3:20 p.m. High-Dimensional Linear Discriminant Analysis: Optimality, Adaptive Algorithm, and Missing Data—✦Linjun Zhang, University of Pennsylvania; Tianwen Cai, University of Pennsylvania

3:35 p.m. Dimension Reduction of High-Dimensional Data Sets Based on Stepwise SVM—✦Elizabeth Chou, National Chengchi University; Tzu-Wei Ko, National Chengchi University

595 CC-West 221

Recent Methods Development on RNA-Seq Data Analysis—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Rafal Kulik, University of Ottawa

2:05 p.m. Differential Expression Analysis of RNA-Seq Data with Integrated Likelihood Method—✦Yilun Zhang, University of Clifornia, Davis; David Rocke, University of California, Davis

2:20 p.m. Cell Type-Aware Differential Expression Analysis for RNA-Seq Data—✦Chong Jin, UNC-Chapel Hill; Wei Sun, Fred Hutchinson Cancer Research Center; Mengjie Chen, University of Chicago; Danyu Lin, University of North Carolina

2:35 p.m. DiPhiSeq: Robust Comparison of Expression Levels on RNA-Seq Data with Large Sample Sizes—✦Alicia Lamere, Bryant University; Jun Li, University of Notre Dame

2:50 p.m. Testing for Differentially Expressed Genetic Pathways with Single-Subject N-Of-1 Data in the Presence of Inter-Gene Correlation—✦Alfred Schissler, University of Nevada, Reno; Walter W Piegorsch, University of Arizona; Yves A Lussier, University of Arizona

3:05 p.m. Variance Component Score Test for Differential Expression in RNAseq Studies—✦Denis Agniel, RAND Corporation; Boris Hejblum, Universite de Bordeaux

3:20 p.m. A Data Adjustment-Tolerant Strategy for RNA-Seq Differential Gene Expression Analysis—✦Guoshuai Cai, Arnold School of Public Health, University of South Carolina; Jennifer M. Franks, Geisel School of Medicine at Dartmouth; Michael L. Whitfield, Geisel School of Medicine at Dartmouth

3:35 p.m. Floor Discussion

596 CC-West 205

Advances in Small Area Estimation—Contributed

Survey Research Methods Section

Chair(s): Xingyou Zhang, Economic Research Service, USDA

2:05 p.m. Substate Small Area Estimates Using Data from the 2014-2016 National Surveys on Drug Use and Health (NSDUHs)—✦Neeraja Sathe, RTI International; Matthew Williams, SAMHSA/CBHSQ; Kathy Spagnola, RTI International; Akhil Vaish, RTI International

2:20 p.m. Small Area Population Models: Estimating the Number of Children in School Districts—✦Jerry Maples, U.S. Census Bureau; Patrick Joyce, U.S. Census Bureau

2:35 p.m. Comparison of NSDUH Population Percentages from the United States, Census Regions, States, and the District of Columbia—✦Kathy Spagnola, RTI International; Matthew Williams, SAMHSA/CBHSQ; Akhil Vaish, RTI International; Neeraja Sathe, RTI International

2:50 p.m. Evaluating the Census Planning Database and MSG as Predictors of Propensity to Respond—✦Xiaoshu Zhu, Westat; Robert Baskin, Westat; David Morganstein, Westat

3:05 p.m. Leading Policy with Localized Item Response Theory: Detection of Differential Item Functioning Across Space—✦Samantha Robinson, University of Arkansas

3:20 p.m. Model-Based Crop Yield Forecasting: Adjustment for Within-State Heterogeneity, Covariate Selection and Variance Estimation—✦Habtamu Benecha, USDA National Agricultural Statistics Service; Nathan Cruze, USDA National Agricultural Statistics Service; Nell Sedransk, National Institute of Statistical Sciences (NISS)

3:35 p.m. Incorporating Design Weights and Historical Data into Model-Based Small-Area Estimation—✦Hui Xie, CDC; Lawrence Barker, CDC; Deborah Rolka, CDC

Invited Sessions 4:00 p.m.—5:50 p.m.

597 CC-West Ballroom BC

COPSS Awards and Fisher Lecture—Invited

Committee of Presidents of Statistical Societies, ASA

Chair(s): Nicholas J. Horton, Amherst College

4:05 p.m. The Future: Stratified Micro-Randomized Trials with Applications in Mobile Health—✦Susan Murphy, Harvard University

5:30 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

THURSDAY AUG. 2

Invited Sessions 8:30 a.m.—10:20 a.m.

598 CC-West 306

■ ● **Statistical Partnerships in Excellence: Featuring SPAIG Award Winning Collaborations—Invited**

Stats. Partnerships Among Academe Indust. & Govt. Committee, Government Statistics Section, Health Policy Statistics Section, Section on Statistical Consulting, Section on Statistics in Defense and National Security

Organizer(s): Kelly H Zou, Pfizer Inc

Chair(s): John E Kolassa, Rutgers, the State University of New Jersey

8:35 a.m.	SPAIG Award Collaboration: Laboratory for Analytic Sciences—✦Alyson Wilson, North Carolina State University
9:00 a.m.	SPAIG Award Collaboration: The National Science Foundation-Census Research Network (NCRN)—Daniel H Weinberg, Consultant; ✦Lars Vilhuber, Cornell University
9:25 a.m.	Soft Skills for Effective Collaborations and Communications—✦Nancy Ann Bates, US Census Bureau
9:50 a.m.	Disc: David Banks, Duke University
10:15 a.m.	Floor Discussion

599 CC-West 217

In Memoriam: Alastair Scott—Invited

Memorial, Survey Research Methods Section, International Association of Survey Statisticians, History of Statistics Interest Group

Organizer(s): Stas Kolenikov, Abt Associates

Chair(s): Stas Kolenikov, Abt Associates

8:35 a.m.	Impact of Alastair Scott's Contributions to Sample Survey Theory and Methods—✦J. N. K. Rao, Carleton University
9:05 a.m.	Taking the Rao--Scott Working Likelihood Seriously—✦Thomas Lumley, University of Auckland
9:35 a.m.	Alastair in New Zealand—✦Chris Wild, University of Auckland
10:05 a.m.	Floor Discussion

600 CC-West 121

Spatial Statistics When Sampling Is Informative—Invited

SSC, Canadian Statistical Sciences Institute, Section on Statistics and the Environment, Survey Research Methods Section

Organizer(s): Patrick E Brown, University of Toronto

Chair(s): Patrick E Brown, University of Toronto

8:35 a.m.	Modeling Preferential Site Selection in Networks Used to Monitor Environmental Spatio-Temporal Processes—✦Jim Zidek, University of British Columbia; Joe Watson, UBC; Gavin Shaddick , University of Exeter
9:00 a.m.	Real Time PM2.5 Mapping and Anomaly Detection from AirBoxes in Taiwan—✦Guowen Huang, National Tsing Hua University
9:25 a.m.	Spatial Modeling for Ecological Surveys - Contributions from and to Point Process Modeling—✦Janine Illian, University of St Andrews
9:50 a.m.	EM, EMS, and a Root Gaussian Cox Process for Aggregated Spatio-Temporal Data—✦Jamie Stafford, University of Toronto
10:15 a.m.	Floor Discussion

601 CC-West 122

■ ● **Prior Specifications for Finite Bayesian Mixture Models—Invited**

International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science

Organizer(s): Mario Peruggia, The Ohio State University

Chair(s): Mario Peruggia, The Ohio State University

8:35 a.m.	Jeffreys Priors and Alternative Noninformative Solutions for Location-Scale Mixtures—✦Christian Robert, Universite Paris-Dauphine; Clara Grazian, University of Oxford
9:00 a.m.	Anchored Bayesian Gaussian Mixture Models—✦Deborah Kunkel, The Ohio State University; Mario Peruggia, The Ohio State University
9:25 a.m.	Heterogeneous Reciprocal Graphical Models—✦Yang Ni, UT Austin; Peter M¸ller, University of Texas Austin; Yitan Zhu, NorthShore University HealthSystem; Yuan Ji, NorthShore Univ. HealthSystem / The University of Chicago
9:50 a.m.	Disc: Bettina Grün, Johannes Kepler Universitet
10:15 a.m.	Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

602 CC-West 222

Theory at the Intersection of Machine Learning and Statistics—Invited

IMS, Mathematical Association of America, WNAR, SSC

Organizer(s): Andrew B Nobel, University of North Carolina at Chapel Hill

Chair(s): Andrew B Nobel, University of North Carolina at Chapel Hill

8:35 a.m.	Sequential Prediction, Martingale Tail Bounds and Automatic Machine Learning—✦Karthik Sridharan, Cornell University
9:00 a.m.	Inference for Recursive Trees—✦Nicolas Fraiman, University of North Carolina at Chapel Hill; Shankar Bhamidi, University of North Carolina at Chapel Hill; Andrew B Nobel, University of North Carolina at Chapel Hill; Ruituo Fan, University of North Carolina at Chapel Hill
9:25 a.m.	Statistical Properties of Deep Networks—✦Peter Bartlett, UC Berkeley
9:50 a.m.	Subsampling and Symmetry in Networks—✦Peter Orbanz, Columbia University
10:15 a.m.	Floor Discussion

603 CC-West 109

■ ● Statistical Inference for Precision Medicine and Subgroup Analysis—Invited

ENAR, Health Policy Statistics Section, Social Statistics Section, Mental Health Statistics Section, SSC

Organizer(s): Minge Xie, Rutgers University

Chair(s): Xiao-Li Meng, Harvard University

8:35 a.m.	Inferential Challenges in Machine Learning and Precision Medicine—✦Michael Kosorok, University of North Carolina at Chapel Hill
9:00 a.m.	Uncertainty Quantification of Treatment Regime in Precision Medicine by Confidence Distributions—✦Minge Xie, Rutgers University; Yilei Zhan, Rutgers University; Sijian Wang, Rutgers University
9:25 a.m.	Bayesian Variable Selection in Subgroup Analysis—✦Juan Shen, Fudan University; Naveen Naidu Narisetty, University of Illinois at Urbana Champaign; Xuming He, University of Michigan
9:50 a.m.	Sample Size Considerations for Precision Medicine—✦Eric Laber, North Carlina State University
10:15 a.m.	Floor Discussion

604 CC-West 206/207

■ ● Superbugs vs. Super-Statistics—Invited

CHANCE, Biometrics Section, Biopharmaceutical Section

Organizer(s): Scott Evans, Harvard University

Chair(s): Toshi Hamasaki,

8:35 a.m.	Dynamic Treatment Regimens for Superbug Infections—✦Dean Follmann, NIAID
9:05 a.m.	Healthy Disruption for Diagnostic Studies Through Pragmatic Benefit:Risk Evaluation—Scott Evans, Harvard University; ✦Ying Liu, Harvard University
9:35 a.m.	Pragmatic Benefit:Risk Evaluation: Healthy Disruption for Clinical Trials—✦Scott Evans, Harvard University; Ying Liu, Harvard University; Dean Follmann, NIAID
10:05 a.m.	Floor Discussion

605 CC-West 116

■ ● Prospects for Combining Survey and Administrative Data for Income Measurement—Invited

Business and Economic Statistics Section, Government Statistics Section, Survey Research Methods Section

Organizer(s): Bruce D Meyer, University of Chicago

Chair(s): Quentin Brummet, U.S. Census Bureau

8:35 a.m.	Administrative Data Linkage and Microsimulation: Challenges and Opportunities—✦Laura Lynn Wheaton, The Urban Institute
8:55 a.m.	Linking Survey and Administrative Data to Measure Family and Household Income, Inequality and Mobility—✦Derek Wu, University of Chicago; Bruce D Meyer, University of Chicago; Carla Medalia, U.S. Census Bureau
9:15 a.m.	Linking Administrative and Survey Data to Revolutionize 21st Century Poverty and Inequality Measurement—✦David Johnson, University of Michigan
9:35 a.m.	Prospects for Combining Survey and Administrative Data for Income Measurement—✦Trudi Jane Renwick, U.S. Census Bureau; Liana Fox, U.S. Census Bureau; Ashley Edwards, U.S. Census Bureau; Jonathan Rothbaum, U.S. Census Bureau
9:55 a.m.	Disc: John Czajka, Mathematica Policy Research
10:15 a.m.	Floor Discussion

606 CC-West 212

■ ● Genetic Data for Epidemiologic Inference During an Outbreak: Statistical Challenges and Solutions—Invited

Section on Statistics in Epidemiology, Biometrics Section, Section on Statistics in Genomics and Genetics

Organizer(s): Forrest W Crawford, Yale School of Public Health
Chair(s): Forrest W Crawford, Yale School of Public Health

8:35 a.m. Informing HIV Prevention and Surveillance Efforts Using Large-Scale Molecular Transmission Cluster Inference—✦Sergei Pond, Temple University; Joel Wertheim, University of California San Diego

8:55 a.m. Those Who Escaped Must Be Captured: Deconstructing Phylogenies and Transmission Trees in Infectious Disease Epidemiology—✦Eben Kenah, The Ohio State University School of Public Health

9:15 a.m. Estimation and Comparison of Transmission Trees Using Sequence Data—Michelle Kendall, Oxford University; ✦Caroline Colijn, Simon Fraser University

9:55 a.m. Disc: Jacco Wallinga, Leiden University Medical Center and National Institute for Public Health and the Environment (NL)

10:15 a.m. Floor Discussion

607 CC-West 117

■ ● **Statistical Consulting in the Machine Age: Where Do You Stand?—Invited**

Section on Statistical Consulting

Organizer(s): Andrew Vesper, Deloitte Consulting LLP
Chair(s): Andrew Vesper, Deloitte Consulting LLP

8:35 a.m. Statistical Consulting in the Age of Cognitive Computing, Deep Learning, and AI: Obsolete or Needed Now More Than Ever?—✦Nikola Andric, Deloitte Consulting LLP

8:55 a.m. The Use of Machine Learning in the Pharmaceutical Industry: The Promise and the Peril—✦Todd Sanger, Eli Lilly and Company

9:15 a.m. The Use of Machine Learning and Statistics in the Technology Sector—✦Joseph Kelly, Google

9:35 a.m. Start from Wherever You Are: How to Adopt the Data Science Mindset into Your Consulting Practice—✦Isabella R Ghement, Ghement Statistical Consulting Company Ltd.

9:55 a.m. Disc: Mike Greene, Deloitte Consulting LLP

10:15 a.m. Floor Discussion

608 CC-West 213

■ ● **Cross-Disciplinary Research on Statistical Genomics and Bioinformatics—Invited**

Biometrics Section, Section on Statistics in Genomics and Genetics, National Institute of Statistical Sciences, SSC

Organizer(s): James L Rosenberger, NISS (National Institute of Statistical Sciences) and Penn State
Chair(s): Rebecca W Doerge, Carnegie Mellon University

8:35 a.m. What Has a Statistics Group Learned in Studying a Biological System—✦Wing Hung Wong, Stanford University

9:00 a.m. Learning Nonconvex Hierarchical Interactions—✦Lingzhou Xue, Penn State University and National Institute of Statistical Sciences

9:25 a.m. Bayesian Bi-Clustering Methods with Applications to Integrative Genomics and Genetics—✦Jun Liu, Harvard University; Yang Li, Vatic Labs; Jiexing Wu, Google

9:50 a.m. Disc: Hongzhe Li, University of Pennsylvania

10:15 a.m. Floor Discussion

Invited Panels 8:30 a.m.—10:20 a.m.

609 CC-West 301

■ ● **Foundation or Backdrop? - the Role of Statisticians in Academic Data Science Initiatives—Invited**

Section on Statistical Learning and Data Science, IMS, International Statistical Institute, SSC

Organizer(s): Tian Zheng, Columbia University
Chair(s): Tyler McCormick, University of Washington

Panelists: ✦Patrick J Wolfe, Purdue University
✦Jennifer L Hill, New York University
✦David Madigan, Columbia University
✦Edoardo M Airoldi , Harvard University
✦Tian Zheng, Columbia University

10:10 a.m. Floor Discussion

610 CC-West 118

■ ● **Collaborative Biostatistics: Finding a Happy Medium in Bridging the Gap Between Theory and Practice—Invited**

Section on Statistical Graphics, Section on Teaching of Statistics in the Health Sciences, Section on Statistical Consulting, Section for Statistical Programmers and Analysts, SSC

Organizer(s): Joseph Rigdon, Stanford University
Chair(s): Summer Han, Stanford University

Panelists: ✦Manisha Desai, Stanford University
✦Christopher Lindsell, Vanderbilt University
✦Phillip Schulte, Mayo Clinic
✦Susan Halabi, Duke University
✦Leah Welty, Northwestern University
✦Mi-Ok Kim, University of California San Francisco

10:10 a.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Topic Contributed Sessions 8:30 a.m.—10:20 a.m.

611 CC-West 203

● Nonparametric Priors for Exchangeable Data and Beyond—Topic Contributed

Section on Bayesian Statistical Science, IMS, International Society for Bayesian Analysis (ISBA)

Organizer(s): Igor Pruenster, Bocconi University

Chair(s): Igor Pruenster, Bocconi University

8:35 a.m. Epsilon-Approximations to the Pitman-Yor Process—✦Pierpaolo De Blasi, University of Turin

8:55 a.m. A Bayesian Semiparametric Regression Model for Joint Analysis of Microbiome Data—✦Juhee Lee, UC Santa Cruz; Marilou Sison-Mangus, Unversity of California, Santa Cruz

9:15 a.m. Bayesian Analysis of Multiple-Sample Data—✦Antonio Lijoi, Bocconi University

9:35 a.m. On Some Applications of Sums of Exchangeable Random Variables—✦Ramses Mena, Universidad Nacional Autonoma De Mexico

9:55 a.m. Global Mean-Field Variational Bayes for Density Regression—✦Tommaso Rigon, Bocconi University; Daniele Durante, Bocconi University

10:15 a.m. Floor Discussion

612 CC-West 202

■ ● Privacy Protections for Transportation Data in the Big Data Environment—Topic Contributed

Committee on Privacy and Confidentiality, Survey Research Methods Section, Transportation Statistics Interest Group

Organizer(s): Jacob Bournazian, US Energy Information Administration

Chair(s): Stephanie Shipp, Biocomplexity Institute of Virginia Tech

8:35 a.m. Power vs. Responsibility: Naturalistic Driving Data Use Cases—✦Miguel A. Perez, Virginia Tech

8:55 a.m. Balancing Participant Privacy Protection with Data Utility in Large Scale Transportation Studies—✦Suzie Lee, VTTI

9:15 a.m. Geospatial Data Anonymization Methods in Support of Transportation Planning—✦William Bachman, Westat

9:35 a.m. SHRP 2 Naturalistic Driving Study Data: Potential Framework for Participant Disclosure Risk Assessment and Management—✦Christian Richard, Battelle; Filmon Habtemichael, Battelle; James Brown, Battelle

9:55 a.m. Disc: Tom Krenzke, Westat

10:15 a.m. Floor Discussion

613 CC-West 209

● Recent Advances in Network Data Inference—Topic Contributed

Social Statistics Section, Section on Statistical Learning and Data Science, Section on Statistical Computing, SSC

Organizer(s): Emma Jingfei Zhang, University of Miami

Chair(s): Emma Jingfei Zhang, University of Miami

8:35 a.m. Global Spectral Clustering in Dynamic Networks—✦David Choi, Carnegie Mellon University; Fuchen Liu, Carnegie Mellon University; Kathryn Roeder, Carnegie Mellon University

8:55 a.m. Community Detection with Covariate Information—✦Yang Feng, Columbia University

9:15 a.m. Latent Space Approaches to Community Detection in Dynamic Networks—✦Yuguo Chen, University of Illinois at Urbana-Champaign; Daniel Sewell, University of Iowa

9:35 a.m. Dynamic Community Detection for Multiple Networks—Sharmodeep Bhattacharyya, Oregon State University; ✦Shirshendu Chatterjee, City University of New York

9:55 a.m. Post-Stratification in Network Driven Sampling—✦Yilin Zhang, University of Wisconsin-Madison; Sebastien Roch, University of Wisconsin-Madison; Karl Rohe, University of Wisconsin-Madison

10:15 a.m. Floor Discussion

614 CC-West 110

■ ● Reasonable Possibility - Statistical Science of Safety Monitoring—Topic Contributed

Biopharmaceutical Section, Quality and Productivity Section

Organizer(s): Hal Li, Merck Research Laboratories

Chair(s): Judy Li, Regeneron Pharmaceuticals Inc.

8:35 a.m. Beware On-Treatment Safety Analysis—✦Janet Wittes, Statistics Collaborative; Fred Yang, Innomed Consulting

8:55 a.m. The Likelihood Principle and Its Application to Aggregate Safety Monitoring—✦LiAn Lin, ; Bill Wang, Merck

9:15 a.m. Visual Analytics to Assess Reasonable Possibility: Using DILI as an Example—✦Kefei Zhou, Theravance Biopharma; Melvin Munsaka, AbbVie, Inc.; Krishan P. Singh, GlaxoSmithKline

9:35 a.m. Practical Considerations in Planning and Implementing Aggregate Safety Monitoring—✦Bill Wang, Merck

9:55 a.m. Floor Discussion

615 CC-West 120

■ Using Para-Data to Analyze the Determinants and Impact of Interview Length—Topic Contributed

Survey Research Methods Section

Organizer(s): Tobias Schmidt, Deutsche Bundesbank

Chair(s): Caroline Vandenplas, KU Leuven

8:35 a.m. Two Short or One Long: An Experiment Comparing Survey Length vs. Quantity of Surveys—✦Rebecca Powell, RTI International; Paul Biemer, RTI Internatinoal; Sarah Cook, RTI International; Kathleen Considine, RTI International; Carolyn Halpern, Carolina Population Center-UNC; Kathleen Harris, Carolina Population Center-UNC; Sarah Dean, Carolina Population Center-UNC

8:55 a.m. Interviewers' Willingness to Spend Time and Effort on the Survey, a Missing Link Between Interview Speed and Contact Process?—✦Celine Wuyts,

9:15 a.m. What Do Interviewers Learn? An Examination of Interview Length and Interviewer Behaviors—✦Kristen Olson, University of Nebraska - Lincoln; Jolene Smyth, University of Nebraska-Lincoln

9:35 a.m. What Took You So Long? The Role of Experience as a Determinant of Interview Length—✦Tobias Schmidt, Deutsche Bundesbank; Kristina Altmann, Deutsche Bundesbank

9:55 a.m. Disc: Jesse Bricker, Federal Reserve Board

10:15 a.m. Floor Discussion

616 CC-West 219

■ ● New Advances in Semiparametric Modeling and Testing for Complex Data—Topic Contributed

Section on Nonparametric Statistics

Organizer(s): Li-Shan Huang, Institute of Statistics, National Tsing Hua University, TAIWAN

Chair(s): Li-Shan Huang, Institute of Statistics, National Tsing Hua University, TAIWAN

8:35 a.m. The Role of Kernels in Data Analysis—✦Marianthi Markatou, University at Buffalo

8:55 a.m. Inverse Regression for Multivariate Functional Data—✦Ci-Ren Jiang, Academia Sinica; Lu-Hung Chen, National Chung-Hsing University

9:15 a.m. A Test of Homogeneity for Two-Sample, Two-Component Mixture Models—✦Ollivier Hyrien, Fred Hutchinson Cancer Research Center

9:35 a.m. Additive Modeling for Longitudinal Data via Classical Backfitting—✦Suneel Babu Chatla, ; Li-Shan Huang, Institute of Statistics, National Tsing Hua University, TAIWAN

9:55 a.m. Yakovlev Promotion Time Cure Model with Local Polynomial Estimation—✦Li-Hsiang Lin, Georgia Tech; Li-Shan Huang, Institute of Statistics, National Tsing Hua University, TAIWAN

10:15 a.m. Floor Discussion

617 CC-West 214

■ ● Indirect Comparisons of Treatment Effects for Clinical Regulatory and Health Economic Evaluations—Topic Contributed

Biopharmaceutical Section

Organizer(s): Yanyan Zhu, Takeda Pharmaceuticals

Chair(s): James Signorovitch, Analysis Group

8:35 a.m. Retrospective Matched-Pairs Analysis for Clinical Trial Patient Level Data: a Simulation Study and General Considerations—✦Bingxia Wang, Takeda Pharmaceuticals Inc.; Chenchen Ma, ; Yanyan Zhu, Takeda Pharmaceuticals; Guohui Liu, Takeda Pharmaceuticals Inc

8:55 a.m. Inference for Clinical Trials That Rely on Historical Data: a Review of Statistical Approaches for Reducing Risk of Bias—Lei Nie, Division of Biometrics V, office of Biostatistics, CDER/FDA; James Signorovitch, Analysis Group; ✦Rajeev Ayyagari, Analysis Group

9:15 a.m. An Overview of Matching Adjusted Indirect Comparisons in Single Arm Clinical Trials with Practical Recommendations and Potential Challenges—✦Dawn Odom, RTI Health Solutions; Molly Purser, RTI Health Solutions; Lawrence Rasouliyan, RTI Health Solutions

9:35 a.m. Matching Adjusted Indirect Comparisons: Sensitivity Analyzes and Graphical Diagnostics—✦Wei Gao, Analysis Group, Inc.; Vanya Rybkin, Analysis Group, Inc.; Zhiwen Yao, Analysis Group, Inc.; Michael Hellstern, Analysis Group, Inc.; James Signorovitch, Analysis Group

9:55 a.m. Uncontrolled Studies and Health Technology Appraisal ? The Need for Methods, Modeling, and Further Research—✦Anthony Hatswell, University College London

10:15 a.m. Floor Discussion

618 CC-West 223

■ ● Modeling Extremes in Weather, Networks, and Finance—Topic Contributed

Section on Risk Analysis

Organizer(s): John P Nolan, American University

Chair(s): John P Nolan, American University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

8:35 a.m. Local Likelihood Estimation of Complex Tail Dependence Structures in High Dimensions, Applied to U.S. Precipitation Extremes—✦Raphaîl Huser, KAUST; Daniela Castro, King Abdullah University of Science and Technology

8:55 a.m. Areal Extremes: An Analysis of the Areal Impact of Heat Waves in Conterminous US—✦Stilian Stoev, University of Michigan; Shrijita Bhattacharya, University of Michigan

9:15 a.m. Are Extreme Value Estimation Methods Useful for Network Data?—✦Tiandong Wang, School of Operations Research and Information Engineering

9:35 a.m. Fitting the Linear Preferential Attachment Model—✦Sidney I. Resnick, Cornell University; Phyllis Wan, Columbia University; Richard A. Davis, Columbia University; Tiandong Wang, School of Operations Research and Information Engineering

9:55 a.m. Conditional Extremes in Financial Markets—✦Natalia Nolde, The University of British Columbia; Jinyuan Zhang, INSEAD

10:15 a.m. Floor Discussion

619 CC-East 19

Spatial and Spatial-Temporal Statistics—Topic Contributed

Section on Statistics and the Environment

Organizer(s): Jonathan Stroud, Georgetown University

Chair(s): Gabriel Huerta, University of New Mexico

8:35 a.m. Spatial Statistics for Improving Collective Estimates of Extreme Precipitation at Weather Stations—✦Mark Risser, Lawrence Berkeley National Laboratory; Christopher Paciorek, University of California, Berkeley; Michael F Wehner, Lawrence Berkeley National Laboratory

8:55 a.m. Non-Gaussian Translation Processes in Dynamic Space-Time Modeling—✦Robert Richardson, Brigham Young University

9:15 a.m. Extended Ensemble Kalman Filters for High-Dimensional Hierarchical State-Space Models—✦Jonathan Stroud, Georgetown University; Matthias Katzfuss, Texas A&M University; Christopher K. Wikle, University of Missouri

9:35 a.m. A Non-Collapsing Particle Filter for a High-Dimensional Cellular Automata Model of Traffic Flow—✦Thomas Bengtsson, Genentech

9:55 a.m. Bayesian Filtering and Model Calibration Approaches to Model an Epidemic Over Space and Time—✦David Higdon, Virginia Tech; Arindam Fadikar, Virginia Tech; Jonathan Stroud, Georgetown University

10:15 a.m. Floor Discussion

620 CC-West 215/216

■ ● Axles for Voxels: Recent Statistical Advances in Neuroimaging Data Analysis—Topic Contributed

ENAR, Section on Statistics in Imaging

Organizer(s): Dipankar Bandyopadhyay, Virginia Commonwealth University

Chair(s): Sourav Santra, Cytel

8:35 a.m. A Time-Varying AR, Bivariate DLM of Functional Near-Infrared Spectroscopy Data—✦Timothy Johnson, Univ of Michigan

8:55 a.m. A Spatial Group Sparse Multi-Task Regression Model for Imaging Genetics—✦Farouk Nathoo, ; Yin Song, University of Victoria; Shufei Ge, Simon Fraser University; Liangliang Wang, Simon Fraser University; Jiguo Cao, Simon Fraser University

9:15 a.m. Partition Mixture of 1D Wavelets for Multi-Dimensional Data with Application to Image Analysis—✦Li Ma, Duke University; Meng Li, Rice University

9:35 a.m. Non-Stationary High-Dimensional Time Series Networks for Brain Imaging Data—✦Ivor Cribben, University of Alberta

9:55 a.m. Spatial Modeling of Diffusion Tensor Imaging Data from a Cocaine Addiction Study—✦Dipankar Bandyopadhyay, Virginia Commonwealth University; Zhou Lan, North Carolina State University; Brian Reich, North Carolina State University; Joseph Guinness, NC State University

10:15 a.m. Floor Discussion

621 CC-West 224

■ ● Quantum Computing: Algorithms and Applications—Topic Contributed

Section on Statistical Computing, Section on Physical and Engineering Sciences, Quantum Computing in Statistics and Machine Learning

Organizer(s): Sergei Leonov, ICON Clinical Research

Chair(s): John Kelly, QxBranch

8:35 a.m. Leveraging Adiabatic Quantum Computation for Election Forecasting—✦Maxwell Henderson, QxBranch

8:55 a.m. Angular Momentum Recoupling and Quantum Computing—✦Ali Eskandarian,

9:15 a.m. On Implementation of Iterative Algorithms of Model-Based Optimal Experimental Design on a Quantum Computer—✦Sergei Leonov, ICON Clinical Research

9:35 a.m. Disc: Peter Wittek, Barcelona Institute of Science and Technology & University of Toronto

9:55 a.m. Disc: Valerii Fedorov, ICON Clinical Research

10:15 a.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

Topic Contributed Panels 8:30 a.m.—10:20 a.m.

622 CC-West 211

● Establishing and Maintaining Public Confidence in Official Statistics—Topic Contributed

Government Statistics Section, Significance Magazine, Government Statistics Section, Survey Research Methods Section

Organizer(s): Wendy L Martinez, Bureau of Labor Statistics

Chair(s): James Cochran, University of Alabama

Panelists: ✦Anil Arora, Statistics Canada

✦Ariunzaya Ayush, National Statistics Office of Mongolia

✦Pali Lehohla, Statistics South Africa

10:10 a.m. Floor Discussion

623 CC-East 10

■ ● Educating the Government Workforce to Lead with Statistics—Topic Contributed

Section on Teaching of Statistics in the Health Sciences, Government Statistics Section

Organizer(s): Janice Lent, U.S. Energy Information Administration

Chair(s): Frauke Kreuter, Joint Program in Survey Methodology

Panelists: ✦David Kinyon, Dept. of Energy

✦Andrew White, National Center for Education Statistics

✦Jeffrey Gonzalez, Bureau of Labor Statistics

✦Barbara Rater, National Agricultural Statistics Service

✦Susan Fortier, Statistics Canada

✦Katherine J Thompson, U.S. Census Bureau

10:10 a.m. Floor Discussion

624 CC-West 210

● GAISEing into Introductory Service Courses in Light of Analytics/Data Science—Topic Contributed

Section on Statistical Education

Organizer(s): Amy L Phelps, Duquesne University

Chair(s): John Draper, The Ohio State University

Panelists: ✦Amy L Phelps, Duquesne University

✦Beverly Wood, Embry-Riddle Aeronautical University, Worldwide

✦Mark Eakin, University of Texas Arlington

✦Mia Stephens, SAS Istitute, JMP Division

✦George Recck, Babson College

10:10 a.m. Floor Discussion

Contributed Sessions 8:30 a.m.—10:20 a.m.

625 CC-West 112

■ Personalized/Precision Medicine II—Contributed

Biometrics Section

Chair(s): Junrui Di, Johns Hopkins Bloomberg School of Public Health

8:35 a.m. A Non-Parametric Statistical Test of Null Treatment Effect in Sub-Populations—✦Lin Taft, GSK; Changyu Shen, Beth Israel Deaconess Medical Center, Harvard Medical School

8:50 a.m. Dynamic Prediction of Competing Risk Events Using Landmark Sub-Distribution Hazard Model with Multivariate Longitudinal Biomarkers—✦Cai Wu, Merck & Co.; Liang Li, UT MD Anderson Cancer Center; Ruosha Li, University of Texas School of Public Health

9:05 a.m. Multi-Response Based Personalized Treatment Selection for Multiple Treatments—✦Chathura Siriwardhana, University of Hawaii; Karunarathna B Kulasekera, University of Louisville

9:20 a.m. Estimating Clusters from Multivariate Binary Data via Hierarchical Bayesian Boolean Matrix Factorization—✦Zhenke Wu, University of Michigan; Livia Casciola-Rosen, Johns Hopkins University School of Medicine; Antony Rosen, Johns Hopkins University School of Medicine; Scott Zeger, Johns Hopkins Biostatistics

9:35 a.m. Treatment Heterogeneity and Treatment Eligibility Estimations Using Random Forest Methods—✦Min Lu, University of Miami; Eugene H. Blackstone, Cleveland Clinic; Hemant Ishwaran, University of Miami

9:50 a.m. Lasso Estimation of Hierarchical Interactions for Analyzing Heterogeneous Treatment Effect—✦Yu Du, Johns Hopkins Bloomberg School of Public Health; Ravi Varadhan, Johns Hopkins University

10:05 a.m. Accelerometry-Based Methods for Smartphone Proximity Detection—✦Josh Barback, Harvard T. H. Chan School of Public Health; Nikita Raman, Dana-Farber Cancer Institute; Alexi Anne Wright, Dana-Farber Cancer Institute; Jukka-Pekka Onnela, Harvard T. H. Chan School of Public Health

626 CC-East 16

■ Health Policy and Real World Evidence with Administrative Data and Electronic Health Records—Contributed

Health Policy Statistics Section

Chair(s): Denis Agniel, RAND Corporation

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

8:35 a.m. Real World Data and Evidence in Health Care Decision Making—✦Kun Chen, AbbVie Inc; Weili He, AbbVie; Hongwei Wang, AbbVie Inc; Yabing Mai, AbbVie, Inc; Qiming Liao, AbbVie Inc

8:50 a.m. A New Direction for Health Policy Decisions Based on Subgroup Discovery: The Cost-Effectiveness Determination Curve—✦Andrew Justin Spieker, University of Pennsylvania; Jason Roy, University of Pennsylvania; Nandita Mitra, University of Pennsylvania

9:05 a.m. Medication Adherence and Cost Exposure: a Story in Heterogeneity—✦Rahul Ladhania, Carnegie Mellon University; Amelia M Haviland, Carnegie Mellon University - Heinz College; Neeraj Sood, University of Southern California; Ateev Mehtotra, Harvard Medical School

9:20 a.m. An Examination of the Impact of Proxy on Disability Measures in the National Health Interview Survey—✦Eric Lauer, University of New Hampshire

9:35 a.m. Quantile Regression Application in Cost Analysis of Peripheral Artery Intervention in U.S. Healthcare Setting—✦Haekyung Jeon-Slaughter, University of Texas Southwestern Medical Center; Shirling Tsai, Dallas VA Medical Center; Bala Ramanan, Dallas VA Medical Center; Abigail Wheeler, R Gare; Houman Khalili, Dallas VA Medical Center; Subhash Banerjee, Dallas VA Medical Center; Ishita Tejani, UT Southwestern Medical Center

9:50 a.m. Predictive Multiple Imputation Models to Facilitate Analyzes of Association Between Contemporaneous Medicaid Enrollment Status and Health Measures Among NHANES Participants—✦Jennifer Rammon, CDC; Jennifer Parker, CDC/NCHS; Yulei He, CDC/NCHS

10:05 a.m. Floor Discussion

627 CC-West 221

Advances in Stochastics and Distribution Theory—Contributed

IMS

Chair(s): Colin Rundel, Duke University

8:35 a.m. Predictive Distribution of Anticipative Alpha-Stable Markov Processes—✦Sebastian Fries, Paris-Saclay University, Faculty of Mathematics & CREST

8:50 a.m. Generalized Score Matching for Non-Negative Data—✦Shiqing Yu, University of Washington; Mathias Drton, University of Washington; Ali Shojaie, University of Washington

9:05 a.m. Efficient Estimation for Jump-Diffusions—✦Nina Munkholt Jakobsen, Technical University of Denmark; Michael S¯rensen, University of Copenhagen

9:20 a.m. A Quantile-Based Asymmetric Family of Distributions: Inference—✦Anneleen Verhasselt, Hasselt University; Karim Rezaul, Hasselt University and KU Leuven; Irene Gijbels, KU Leuven

9:35 a.m. Partial Identifiability of Restricted Latent Class Models—✦Yuqi Gu, University of Michigan; Gongjun Xu, University of Michigan

9:50 a.m. A Sequential Probability Ratio Test for Higher Criticism—✦Wenhua Jiang, Fudan University; Cun-Hui Zhang, Rutgers University

10:05 a.m. Floor Discussion

628 CC-East 14

Complex Data Analysis with Mental Health Applications—Contributed

Mental Health Statistics Section

Chair(s): Hua Zhong, New York University

8:35 a.m. A Hierarchical Bayesian Markov-Dependent Model for Lifetime Persistence and Recurrence of Major Depressive Episodes—✦Chenyang Gu, Harvard Medical School; Alan Zaslavsky, Harvard University Medical School; Ronald Kessler, Harvard Medical School

8:50 a.m. Repeated Within-Subject Distributions with Covariates and Censoring: a Neuroscience Application—✦Ryan Kelly, University of Pittsburgh; Allan Sampson, University of Pittsburgh; Rob Sweet, University of Pittsburgh; Ken Fish, University of Pittsburgh; David Lewis, University of Pittsburgh

9:05 a.m. Statistical Learning of Successful Smiles—✦Nathaniel Helwig, University of Minnesota

9:20 a.m. Clustered-Temporal Bayesian Model for Brain Connectivity in Neuroimaging Data—✦Nairita Ghosal, University of Illinois at Chicago; Sanjib Basu, University of Illinois at Chicago

9:35 a.m. Mediation Analysis with Item Response Theory Model for Ordinal Variables: An Application to a Hypothetical Clinical Trial—✦Yun Zhang, Janssen Research & Development, LLC; Xiang Li, Statistics and Decision Sciences, Janssen Research & Development, LLC; Pilar Lim, Janssen Research & Development, LLC

9:50 a.m. Estimation and Inference for the Mediation Effect in a Time-Varying Mediation Model—✦Donna Coffman, Temple University; Xizhen Cai, Temple University; Runze Li, Penn State University

10:05 a.m. Floor Discussion

629 CC-West 218

New Developments in Nonparametric and Semiparametric Statistics—Contributed

Section on Nonparametric Statistics, Royal Statistical Society, ENAR

Chair(s): Qing Wu, University of Nevada, Las Vegas

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

8:35 a.m. Fair Inference Through Semiparametric-Efficient Estimation Over Constraint-Specific Paths—✦Nima Hejazi, Group in Biostatistics, UC Berkeley

8:50 a.m. Measuring Lexical Dispersion in Corpus Linguistics—✦Brent Burch, Northern Arizona University; Jesse Egbert, Northern Arizona University; Douglas Biber, Northern Arizona University

9:05 a.m. A First-Order Multiresolution Analysis of Point Processes—✦Youssef Taleb, Imperial College London; Edward A K Cohen, Imperial College London

9:20 a.m. A Flexible Zero-Inflated Regression Model—✦Eric Roemmele, ; Derek S. Young, University of Kentucky

9:35 a.m. Wavelet Coherence for Multivariate Point Processes—✦Edward A K Cohen, Imperial College London; Alex J Gibberd, Imperial College London

9:50 a.m. An Integrated Bayesian Nonparameteric Method for Clustering of High-Dimensional Mixed Data—✦Chetkar Jha, University of Missouri; Subharup Guha, University of Florida

10:05 a.m. CRSP: Modeling Stochastically Intransitive Relationships Between NBA Teams—✦Ryan Patrick Alexander McShane, Southern Methodist University; Ian Harris, Southern Methodist University

630 CC-East 9

■ Uncertainty Quantification, Reliability and Robust Inference—Contributed

Section on Statistics in Defense and National Security, Quality and Productivity Section, Section on Physical and Engineering Sciences

Chair(s): Brian Groves, Raytheon

8:35 a.m. Measure Specific Mixture Model (MSM2) for Change Detection—✦Fairul Mohd-Zaid, Air Force Research Lab; Christine Schubert Kabban, Air Force Institute of Technology

8:50 a.m. Multivariate Methods and Data Integration in Social Media for Anomaly Detection—Karl Pazdernik, Pacific Northwest National Laboratory; Kellie MacPhee, University of Washington; Bryan Stanfill, Pacific Northwest National Laboratory; ✦Lisa Bramer, Pacific Northwest National Laboratory

9:05 a.m. Emulating Satellite Drag from Large Simulation Experiments—✦Furong Sun, Virginia Tech; Robert Gramacy, Virginia Tech; Benjamin Haaland, Population Health Sciences, University of Utah; Earl Christopher Lawrence, Los Alamos National Laboratory; Andrew Walker, Space Science and Applications, Los Alamos National Laboratory

9:20 a.m. A Mathematical Framework for Uncertainty Quantification in Multimodal Image Analysis via Probabilistic Clustering Models—✦Maximillian Chen, Sandia National Laboratories; David John Stracuzzi, Sandia National Laboratories; Michael Christopher Darling, Sandia National Laboratories

9:35 a.m. Visualizing Clustering and Uncertainty Analysis of Multivariate Time-Series Data—✦Kristin Divis, Sandia National Laboratories; Maximillian Chen, Sandia National Laboratories; Laura A McNamara, Sandia National Laboratories; Dan Morrow, Sandia National Laboratories

9:50 a.m. Signal Aliasing in Gaussian Random Fields for Experiments with Qualitative Factors—✦Ming-Chung Chang, ; Shao-Wei Cheng, National Tsing Hua University; Ching-Shui Cheng, Academia Sinica

10:05 a.m. Floor Discussion

631 CC-West 114

● Clinical Trial Design- 7—Contributed

Biopharmaceutical Section

Chair(s): Yuqi Chen, Amgen

8:35 a.m. Impact of Site Variation on Objective Response Rate—✦Fang Liu, Merck & Co., Inc; Cong Chen, Merck & Co.

8:50 a.m. Utility and Challenges of Applying Quantitative Benefit-Risk Assessment for Regulatory Decision Making—Weili He, AbbVie; ✦Bo Fu, Astellas Pharma Inc.; John Scott, FDA

9:05 a.m. Does it Pay to Repeat the Baseline?—✦Shiyang Ma, University of Rochester; David Oakes , University of Rochester

9:20 a.m. Extension to Signature Design—✦Xiting Yang, Food and Drug Administration

9:35 a.m. A Unified Framework for Weighted Parametric Multiple Test Procedures—✦Dong Xi, Novartis Pharmaceuticals; Ekkehard Glimm, Novartis; Willi Maurer, Novartis; Frank Bretz, Novartis Pharma AG

9:50 a.m. Target Toxicity Design for Phase 1 Dose-Finding: a Safe and Reliable Method—✦Bob Zhong, Johnson and Johnson; Weichuan Guo, University of California Riverside

10:05 a.m. Bayesian Extrapolation in Pediatric Clinical Trials—✦Mehreteab F Aregay, Novartis; David Ohlssen, Novartis; Heinz Schmidli, Novartis Pharamceutical Corporation

632 CC-West 115

● Statistical Issues Specific the Therapeutic Areas-4—Contributed

Biopharmaceutical Section

Chair(s): Wen-Chi Wu, Merck

8:35 a.m. Variational Inference for Proportional Hazards Model with Power Prior in Oncology Studies—✦Bo Jin, Boston Biomedical Inc.; Yue Chang, Boston Biomedical Inc

8:50 a.m. Utilization of Historical Data and Real World Evidence in Clinical Trial Development - Case Studies in Rare Disease and Oncology—✦Florence H Yong, Pfizer Inc.; Ray Li, Pfizer Inc.; Steven Y Hua, Celgene - Receptos; Jeffery Palmer, Pfizer Inc.; Roberto Bugarini, Pfizer Inc.

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

9:05 a.m. Mathematical Modeling Identifies Optimum Lapatinib Dosing Schedules for the Treatment of Glioblastoma Patients—✦Shayna Stein, Harvard University; Franziska Michor, Dana Farber Cancer Institute

9:20 a.m. Evaluation of Statistical Methods for Survival Analysis with Time-Dependent Variables—✦Chris Holland, Amgen; Qui Tran, Amgen; Cassie Dong, Amgen

9:35 a.m. Predicting the Long-Term Exposure in Acute Treatment of Migraine Using a Nonhomogeneous Poisson Process with Random Effects—✦Kaifeng Lu,

9:50 a.m. Statistical Challenges and Opportunities in Drug Development for Rare Diseases—✦Guowen Sun, BioMarin; Keith Gregg, BioMarin; Peter Slasor, BioMarin; Chito Hernandez, BioMarin Pharmaceutical Inc.

10:05 a.m. Optimal Treatment Recommendation via Subgroup Identification in Randomized Control Trials—✦Yang (Grace) Zhao, Gilead Sciences; Haoda Fu, Eli Lilly and Company

633 CC-West 208

● Model-Based Statistics and Applications—Contributed

Government Statistics Section

Chair(s): Anne Parker, Internal Revenue Service

8:35 a.m. Heteroscedasticity and Model Selection via Partitioning: Application to Shrimp Data Files in the Gulf of Mexico, Years 2015 and 2016—✦Morteza Marzjarani,

8:50 a.m. Case-Control Studies with Differential Ascertainment: a Capture-Recapture Approach—✦Matteo Sordello, Wharton

9:05 a.m. Validation of 2015 Residential Energy Consumption Survey (RECS) End-Use Estimates by a Bayesian Calibration Model—✦Hiroaki Minato, U. S. Energy Information Administration (EIA)

9:20 a.m. Finding and Combining Multiple Designed Data Sets for Estimating Causal Effects in Observational Studies—✦Zach Branson, Harvard University; Marie-Abele Bind, Harvard University

9:35 a.m. Logistic Regression Modeling for Capture-Recapture Estimation in the 2017 Census of Agriculture—✦Michael Hyman, USDA-NASS; Luca Satore, NISS

9:50 a.m. Floor Discussion

634 CC-West 204

Bayesian Methodology—Contributed

Section on Bayesian Statistical Science

Chair(s): Peter Zhang, Otsuka

8:35 a.m. Bayesian Variable Selection in Multivariate Nonlinear Regression with Graph Structures—✦Yabo Niu, Texas A&M University; Nilabja Guha, University of Massachusetts Lowell; Debkumar De, Texas A&M University; Anindya Bhadra, Purdue University; Veera Baladandayuthapani, UT MD Anderson Cancer Center; Bani K. Mallick, Texas A&M University

8:50 a.m. Gaussian Process Selections in Semiparametric Regression for Multi-Pathway Analysis—✦Jiali Lin, Virginia Tech; Inyoung Kim, Virginia Tech

9:05 a.m. Bayesian Spectral Analysis of High-Dimensional Time Series—✦Ori Rosen, Univ of Texas at El Paso; Rob Krafty, University of Pittsburgh

9:20 a.m. Statistical Inference for Interaction Effects in Unreplicated Studies via Bayesian Model Averaging—✦Christopher Franck, Virginia Tech

9:35 a.m. Bayesian Uncertainty Quantification for CO2 Retrieval from Satellite Remote Sensing Data—✦Anirban Mondal, Case Western Reserve University; Jonathan Hobbs, Jet Propulsion Laboratory

9:50 a.m. Floor Discussion

635 CC-West 304/305

Advances in Machine Learning—Contributed

Section on Statistical Learning and Data Science

Chair(s): Yiying Fan, Cleveland State University

8:35 a.m. A Comparison of Record Linkage Techniques—✦Lowell Mason, U.S. Bureau of Labor Statistics

8:50 a.m. Assessment of Case Influence in Support Vector Machine—✦Shanshan Tu, The Ohio State University; Yoonkyung Lee, Ohio State University; Yunzhang Zhu, The Ohio State University

9:05 a.m. Time Weighted Robust Combination of Multiple Time Series Forecasting Models—✦Abhirup Mallik, Bosch; Swetha Mallika Gunturu, Bosch; Goktug Cinar, Bosch

9:20 a.m. Composite Local Bregman Divergences for Conditional Discrete Exponential Families—✦Mitsunori Ogawa, The University of Tokyo

9:35 a.m. Inverse Sampling for Hypothesis Testing of Multinomial Models—✦Hokwon Cho, University of Nevada, Las Vegas

9:50 a.m. An Approximation to the Information Matrix of Hidden Markov Model—✦Qing Ji, University of Maryland, Baltimore County; Andrew Raim, U.S. Census Bureau; Nagaraj Neerchal, University of Maryland, Baltimore County

10:05 a.m. Floor Discussion

636 CC-East 17

Statistical Methods of Air Quality and Exposure—Contributed

Section on Statistics and the Environment

Chair(s): Whitney Huang, Statistical and Applied Mathematical Sciences Institute

8:35 a.m. Automatic Wildfire Smoke Plume Identification from Satellite Imagery with Machine Learning—✦Alexandra Larsen, North Carolina State University; Ana Rappold, U.S. Environmental Protection Agency; Yi Qin, The Commonwealth Scientific and Industrial Research Organisation; Martin Cope, The Commonwealth Scientific and Industrial Research Organisation; Geoffrey Morgan, The University of Sydney; Ivan Hannigan, The University of Sydney; Brian J. Reich, North Carolina State University

8:50 a.m. A Data-Driven Approach to Source-Receptor Mapping of Power Plant Emissions to Exposed Populations—✦Kevin Cummiskey, United States Military Academy; Christine Choirat, Harvard T.H. Chan School of Public Health; Chanmin Kim, Boston University School of Public Health; Lucas Henneman, Harvard T.H. Chan School of Public Health; Corwin Zigler, Harvard T.H. Chan School of Public Health

9:05 a.m. Wind as an Instrumental Variable in Air Pollution Epidemiology—✦Keith Zirkle, Virginia Commonwealth University; David C. Wheeler, Virginia Commonwealth University; Marie-Abele Bind, Harvard University

9:20 a.m. Regional Air Quality Assessment That Adjusts for Meterological Confounding—✦Shuyi Zhang, Peking University; Song Xi Chen, Peking University; Bin Guo, Southwestern University of Finance and Economics; Wei Lin, Peking University; Hengfang Wang, Iowa State University

9:35 a.m. Probabilistic Predictive Principal Component Analysis for Spatially-Misaligned and High-Dimensional Air Pollution Data with Missing Observations—✦Phuong T Vu, University of Washington; Adam A Szpiro, University of Washington

9:50 a.m. A Generalized Weighted Quantile Sums Approach That Accounts for Interactions Between Highly Correlated Exposures and Other Factors—✦MinJae Lee, University of Texas McGovern Medical School; Maureen Samms-Vaughan, The University of the West Indies; Jan Bressler, University of Texas School of Public Health at Houston; MacKinsey Christian, University of Texas School of Public Health at Houston; Manouchehr Hessabi, University of Texas Health Science Center at Houston; Megan Grove, University of Texas School of Public Health at Houston; Sydonnie Shakespeare-Pellington, The University of the West Indies; Charlene Coore Desai, The University of the West Indies; Jody-Ann Reece, The University of the West Indies; Katherine Loveland, University of Texas McGovern Medical School; Eric Boerwinkle, University of Texas School of Public Health at Houston; Mohammad H. Rahbar, University of Texas McGovern Medical School

10:05 a.m. Short-Term Forecasting of Seasonal Environmental Time Series—✦Kimihiro Noguchi, Western Washington University; Benjamin Hansen, University of Groningen

637 CC-West 119

The Use of Auxiliary Data in Frame Development, Coverage Assessment, and Field Data Collection—Contributed

Survey Research Methods Section

Chair(s): Vladislav Beresovsky, National Center for Health Statistics

8:35 a.m. Relationship Between Positive Responses to Child-Specific Probes on the 2010 Census Questionnaire and 2010 Census Coverage Measurement Nonmatching Young Children—✦Mary Mulry, U.S. Census Bureau

8:50 a.m. The Effect of Address Coverage Enhancement on Estimates of an ABS Survey—✦Michael Jones, Westat; J. Michael Brick, Westat; Andrea Piesse, Westat

9:05 a.m. Switching from Field Enumeration to an ABS Frame: The Effect on Coverage Bias—✦Ashley Amaya, RTI International; Matthew Williams, SAMHSA/CBHSQ; Devon Cribb, RTI International; Rachel Harter, RTI International; Katherine B Morton, RTI International

9:20 a.m. Virtual Listing: GIS Approaches to Improve Survey Listing Efficiency—✦Michael Giangrande, Westat; J. Michael Brick, Westat; David Morganstein, Westat; Katie Lewis, U.S. Energy Information Administration

9:35 a.m. Selecting a Sample from a Changing Frame of Program Beneficiaries—✦Eric Grau, Mathematica Policy Research

9:50 a.m. Using Area Characteristics to Model Nonresponse and Late Reporting in the Current Employment Statistics Survey—✦John Dixon, Bureau of Labor Statistics

10:05 a.m. A Simulation-Based Approach to Refining Estimates of Sampling Variability for the Planning Database's Low Response Score—✦Luke J Larsen, U.S. Census Bureau

638 CC-West 205

Bayesian Methods for Time-To-Event and Frailty—Contributed

Section on Bayesian Statistical Science

Chair(s): Y. Samuel Wang, University of Washington

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

8:35 a.m. Bayesian Large Scale Inference for Time to First Event of Multivariate Ordinal Survival Outcomes with Application to an Observational Cohort Study—✦David Schlueter, Vanderbilt University; Christopher Fonnesbeck, Vanderbilt University; Pingsheng Wu, Vanderbilt University; Qingxia Chen, Vanderbilt University

8:50 a.m. Sample Size Calculation for Studies with Grouped Survival Type Data—✦Zhiguo Li, Duke University; Xiaofei Wang, Duke University School of Medicine; Yuan Wu, Duke University; Kouros Owzar, Duke University

9:05 a.m. On Cure Rate Models Under Additive Hazards with Error-Contaminated Covariates—✦Sandip Barui, University of Waterloo; Grace Yi, University of Waterloo

9:20 a.m. Adjusting for Handling Effects in Microarray Data for Prognostic Biomarker Discovery and Survival Risk Prediction—✦Ai Ni, Memorial Sloan Kettering Cancer Center; Mengling Liu, New York University; Li-Xuan Qin, Memorial Sloan Kettering Cancer Center

9:35 a.m. Frailty Model for Time-To-Event Data on a Social Network—✦Fangda Song, The Chinese University of Hong Kong; Jing Chu, University of Michigan; Yingying Wei, The Chinese University of Hong Kong

9:50 a.m. Survival,†Longitudinal†and†Multivariate Models for Health Monitoring—✦Ji Soo Kim, Johns Hopkins Biostatistics; Carrie Richardson, Johns Hopkins Rheumatology; Ami Shah, Johns Hopkins Rheumatology; Scott Zeger, Johns Hopkins Biostatistics

10:05 a.m. A Bayesian Sequential Design for Clinical Trials with Time-To-Event Outcomes—✦Lin Zhu, Louisiana State University Health Sciences Ctr; Qingzhao Yu, Louisiana State University Health Sciences Ctr

Invited Sessions 10:30 a.m.—12:20 p.m.

639 CC-West 224

■ ● Causal Inference Meets Statistical Learning with Complex Data—Invited

ENAR, Section on Statistics in Epidemiology, Social Statistics Section, SSC

Organizer(s): Zhiqiang Tan, Rutgers University

Chair(s): Michael Elliott, University of Michigan

10:35 a.m. Augmented Minimax Linear Estimation—✦Stefan Wager, Stanford University; David Hirshberg, Columbia University

11:00 a.m. Targeted Learning for Causal Inference—✦Mark van der Laan, UC Berkeley

11:25 a.m. Regularized Calibrated Estimation of Propensity Scores with Model Misspecification and High-Dimensional Data—✦Zhiqiang Tan, Rutgers University

11:50 a.m. Discovering Effect Modification in Observational Studies—✦Dylan Small, University of Pennsylvania; Jesse Yenchih Hsu, University of Pennsylvania; Paul Rosenbaum, University of Pennsylvania; Kwonsang Lee, Harvard University; Jose Zubizarreta, Harvard University; Jeffrey Silber, University of Pennsylvania

12:15 p.m. Floor Discussion

640 CC-West 206/207

■ ● Quantile Based Modeling for a Variety of Heteroscedastic Data—Invited

Section on Nonparametric Statistics

Organizer(s): Naveen Naidu Narisetty, University of Illinois at Urbana Champaign

Chair(s): Juan Shen, Fudan University

10:35 a.m. A New Approach to Censored Quantile Regression Estimation—✦Naveen Naidu Narisetty, University of Illinois at Urbana Champaign

11:00 a.m. Quantile Regression--Based Clustering for Panel Data—✦Huixia Judy Wang, The George Washington University; Yingying Zhang, Fudan University; Zhongyi Zhu, Fudan University

11:25 a.m. Trajectory Quantile Regression for Longitudinal Data—Huijuan Ma, Emory University; ✦Limin Peng, Emory University; Haoda Fu, Eli Lilly and Company

11:50 a.m. Bayesian Single-Index Model for Bounded Mental Health Response with Functional Covariates—✦Debajyoti Sinha, Florida State University; STUART LIPSITZ, HARVARD MEDICAL SCHOOL

12:15 p.m. Floor Discussion

641 CC-West 306

● Memorial Session for Joseph Hilbe: a Statistician Who Counted!—Invited

Memorial, International Statistical Institute, Section on Statistics in Sports, Astrostatistics Special Interest Group, History of Statistics Interest Group

Organizer(s): Kimberly F Sellers, Georgetown University

Chair(s): Justine Shults, University of Pennsylvania Perelman School of Medicine

10:35 a.m. An Overview of Count Data Models, Their Use, and Their Implementation in Software—✦James Hardin, University of South Carolina

10:55 a.m. An Overview of Generalized Linear Models with Applications in Astronomy—✦Rafael S. de Souza, UNC Chapel Hill and International Astrostatistics Association

11:15 a.m. Dr. Joseph Hilbe and his Impact on the Development of New methods for Discrete Data Analysis—✦Justine Shults, University of Pennsylvania Perelman School of Medicine

11:35 a.m. Joseph Hilbe: Athlete, Coach, Statistician and Mentor — Michael Hilbe, Arizona State University

11:55 a.m. Disc: Kimberly F Sellers, Georgetown University

11:35 a.m. Floor Discussion

642 CC-West 301

■ ● Data Science for Social Good—Invited

Section on Statistical Learning and Data Science, Statistics and Public Policy, Social Statistics Section, Section on Statistical Computing, Survey Research Methods Section

Organizer(s): Gayle S Bieler, RTI International

Chair(s): Gayle S Bieler, RTI International

10:35 a.m. Data for Good: Designing for Impact—✦Jake Porway, DataKind

11:00 a.m. Data Science + Social Science: Using Data Science to Track Arrest-Related Deaths in the US—✦Duren Banks, RTI International; Peter Baumgartner, RTI International; Michael G. Planty, RTI International

11:25 a.m. A Model for Prioritizing Interventions for People at Risk of Incarceration—✦Erika Salomon, University of Chicago

11:50 a.m. Disc: Craig A. Hill, RTI International

12:15 p.m. Floor Discussion

643 CC-West 117

Biomarkers and Clinical Trials—Invited

WNAR, Biopharmaceutical Section, Society for Clinical Trials, SSC

Organizer(s): Kathleen F. Kerr, University of Washington

Chair(s): Yingqi Zhao, Fred Hutchinson Cancer Research Center

10:35 a.m. Evaluating Biomarkers for Prognostic Enrichment of Clinical Trials—✦Kathleen F. Kerr, University of Washington; Jeremy Roth, University of Washington; Kehao Zhu, Axio Research; Heather Thiessen-Philbrook, Yale University; Allison Meisner, Johns Hopkins University; Francis Perry Wilson, Yale University; Steven Coca, Icahn School of Medicine at Mount Sinai; Chirag Parikh, Yale University

11:00 a.m. Using Surrogate Biomarker Information to Plan a Future Clinical Trial—✦Layla Parast, RAND; Tianxi Cai, Harvard T.H. Chan School of Public Health; Lu Tian, Stanford University School of Medicine

11:25 a.m. Biomarker Guided Phase II Two-Stage Design for Targeted Therapy—✦Zheyu Wang, Johns Hopkins University; Fujun Wang, Medimmune; Chenguang Wang, Johns Hopkins University; Gary Rosner, Johns Hopkins University; Jianliang Zhang, Medimmune; Hao Wang, Johns Hopkins University; Li Shi, Medimmune

11:50 a.m. Evaluating the Ability of a Biomarker to Improve the Diagnosis of Malaria Infection in Malaria 'Challenge' Trials—✦Holly Janes, Fred Hutchinson Cancer Research Center

12:15 p.m. Floor Discussion

644 CC-West 211

■ ● Statistical Computing on Parallel Architectures—Invited

Section on Statistical Computing, Section on Physical and Engineering Sciences, Section for Statistical Programmers and Analysts, SSC

Organizer(s): George Ostrouchov, Oak Ridge National Laboratory

Chair(s): Norman Matloff, University of California at Davis

10:35 a.m. Success with OpenMP in R Package Data.table—✦Matt Dowle, H2O.ai

10:55 a.m. Deferred Evaluation for Scalable Computing in R—✦Michael Lawrence, Genentech

11:15 a.m. The pbdR Project: Distributed Computing with R—✦Wei-Chen Chen, FDA/CDRH; Drew Schmidt, ORNL; George Ostrouchov, Oak Ridge National Laboratory

11:35 a.m. Automatic Parallelization of R Code—✦Clark Fitzgerald, University of California, Davis

11:55 a.m. Disc: George Ostrouchov, Oak Ridge National Laboratory

12:15 p.m. Floor Discussion

645 CC-West 217

Recent Developments in Score Matching with Big-Data Applications—Invited

IMS, Section on Statistical Learning and Data Science, Section on Nonparametric Statistics

Organizer(s): Mladen Kolar, University of Chicago Booth School of Business

Chair(s): Mladen Kolar, University of Chicago Booth School of Business

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

10:35 a.m. The Beauty of Score Matching Estimators for Distributions on Manifolds with Some Cutting-Edge Applications—✦KANTI V MARDIA, UNIVERSITY OF LEEDS

11:00 a.m. Scoring Rules for Probabilistic Binary Classification—✦Matthew Parry, University of Otago

11:25 a.m. Efficient and Principled Score Estimation—✦Arthur Gretton, UCL

11:50 a.m. Measuring Sample Quality with Kernels—✦Jackson Gorham, Opendoor; Lester Mackey, Microsoft Research New England

12:15 p.m. Floor Discussion

646 CC-East 10

● Experimental Design Thinking for Big Data—Invited

Section on Physical and Engineering Sciences, Quality and Productivity Section, International Chinese Statistical Association, SSC

Organizer(s): Xinwei Deng, Virginia Tech; C. Devon Lin, Queen's University

Chair(s): C. Devon Lin, Queen's University

10:35 a.m. Information-Based Subdata Selection for LASSO Regression—✦Min Yang, University of Illinois at Chicago; Xin Wang, University of Illinois at Chicago

11:00 a.m. Information-Based Subdata Selection—✦John Stufken, Arizona State University

11:25 a.m. Embracing Experimental Design Thinking for Large-Scale Statistical Analysis—✦Peter Chien, University of Wisconsin-Madison

11:50 a.m. Disc: Tirthankar Dasgupta, Rutgers University

12:15 p.m. Floor Discussion

647 CC-East 16

■ ● Current Federal Research on Improving Measurement of LGBT Populations—Invited

ASA LGBT Concerns Committee, Government Statistics Section, Survey Research Methods Section, Social Statistics Section

Organizer(s): Jennifer Truman, Bureau of Justice Statistics

Chair(s): Darcy Miller, National Agricultural Statistics Service

10:35 a.m. Assessing the Feasibility of Asking Questions on Sexual Orientation and Gender Identity on the Current Population Survey (CPS)—✦Renee Ellis, U.S. Census Bureau; Jessica Holzberg, U.S. Census Bureau; Matthew Virgil , U.S. Census Bureau; Jennifer Edgar, Bureau of Labor Statistics; Polly Phipps, Bureau of Labor Statistics

10:55 a.m. Improving the Measurement of Sexual Orientation and Gender Identity Among Youth—Jessica Stroop, Bureau of Justice Statistics; Darby Steiger, Westat; ✦Leanne Heaton, Westat; Crystal MacAllum, Westat; Jessica Behm, Westat; Cecilia Avison, Westat

11:15 a.m. Prevalence of Sexual Orientation and Gender Identity Behaviors: An Approach for State-Level and National Estimation Derived from the Behavioral Risk Factor Surveillance System (BRFSS)—✦Ronaldo Iachan, ICF; Yangyan Deng, ICF

11:35 a.m. Differences in Rates of Suicidal Ideation and Potential Suicide Attempt Among Disabled and Gender Minority Medicare Beneficiaries from 2009--2014—✦Ana M. Progovac, Harvard Medical School / Cambridge Health Alliance; Brian Mullin, Cambridge Health Alliance; Alex McDowell, Harvard Medical School / Cambridge Health Alliance; Maria Jose Sanchez, Cambridge Health Alliance; Sari L. Reisner, Harvard T.H. Chan School of Public Health ; Emilia Dunham, Massachusetts Department of Public Health ; Cynthia Telingator, Cambridge Health Alliance; Benjamin Le Cook, Harvard Medical School / Cambridge Health Alliance

11:55 a.m. Recent Updates to the Medicare Transgender Cohort: Results from ICD-10—Paul Guerino, Centers for Medicare & Medicaid Services; Erin Ewald, NORC at the University of Chicago; ✦Alison Laffan, NORC at the University of Chicago; Christina Dragon, CMS Office of Minority Health; Carl Streed, Brigham and Women's Hospital; Zil Goldstein, The Mount Sinai Hospital

12:15 p.m. Floor Discussion

648 CC-West 215/216

■ Statistical Challenges in the Analysis of EHR Data—Invited

Health Policy Statistics Section, Section on Risk Analysis, Section on Statistics in Epidemiology

Organizer(s): Elizabeth Sweeney, Flatiron Health

Chair(s): Paul You , Flatiron Health

10:35 a.m. Risk Prediction Using Longitudinal Predictors: An Application to Electronic Health Records Data—✦Benjamin A Goldstein, Duke University; Michael Pencina, Duke University; Gina-Maria Pomann, Duke University; Wolfgang Winkelmayer, Baylor University

11:00 a.m. Statistical Issues in the Design of Clinical Research Embedded Within Health Care Delivery Systems—✦Patrick James Heagerty, University of Washington

11:25 a.m. Utilizing Statistical Methods for Pre-Processing EHR Data for Analysis—✦Alex Milinovich, Cleveland Clinic

11:50 a.m. Deriving and Analyzing Endpoints from Electronic Health Record Data: a Case Study from Clinical Oncology—✦Sandra Griffith, Flatiron Health; Ariel Bourla, Flatiron Health; Bryan Bowser, Flatiron Health ; Geoff Calkins, Flatiron Health; Joe Chang, Flatiron Health; Rebecca Miksad , Flatiron Health Brian Segal, Flatiron Health; Elizabeth Sweeney, Flatiron

Health; Erin Williams, Flatiron Health; Paul You , Flatiron Health; Amy Abernethy, Flatiron Health

12:15 p.m. Floor Discussion

649 CC-West 212

■ ● The 'Ergonomics' of Statistics and Data Science—Invited

International Statistical Institute, SSC

Organizer(s): Regina Nuzzo, Gallaudet University

Chair(s): Regina Nuzzo, Gallaudet University

10:35 a.m. How Human Behavior Drives Data Science---and How We Know Almost Nothing About It—✦Jeffrey Leek, Johns Hopkins Bloomberg School of Public Health

10:55 a.m. A Systematic Approach to Data, Analysis and Interpretation for Reliable Results—✦Stephen J. Ruberg, Eli Lilly and Company

11:15 a.m. Analyzing Students' Data Analysis Pipeline Decisions to Build an Interactive, Adaptive Software Platform—✦Rebecca Nugent, Carnegie Mellon University

11:35 a.m. How Software Affects Humans' Conceptions of Data: a Case Study in R Syntaxes—✦Amelia McNamara, Smith College

11:55 a.m. Varieties of Error and Varieties of Evidence in Scientific Inference: Statistics Meets Formal Epistemology—✦Barbara Osimani, Munich Center for Mathematical Philosophy

12:15 p.m. Floor Discussion

650 CC-West 202

■ Relaxing No Interference Assumptions in Clustered Randomized Trials—Invited

Social Statistics Section, Statistics and Public Policy, Journal of Educational and Behavioral Statistics

Organizer(s): Luke Keele, Georgetown University

Chair(s): Luke Keele, Georgetown University

10:35 a.m. Causal Inference with Interference and Noncompliance in the Two-Stage Randomized Experiments—✦Zhichao Jiang, Princeton University; Kosuke Imai, Princeton University; Anup Malani, University of Chicago

11:00 a.m. IMP: Interference Manipulating Permutations—✦Michael Baiocchi, Stanford University; Eric Jay Daza, Stanford University

11:25 a.m. Causal Effects in Partially and Non-Randomized Two-Stage Designs with Interference—Avi Feller, UC Berkeley; Samuel David Pimentel, University of California, Berkeley; Panos Toulis, University of Chicago; Guillaume Basse, Harvard University; ✦Luke J. Keele, University of Pennsylvania

11:50 a.m. Interference and Noncompliance in Clustered Randomized Trials for Program Evaluation—✦Hyunseung Kang, University of Wisconsin - Madison; Luke Keele, Georgetown University

12:15 p.m. Floor Discussion

651 CC-West 203

■ ● Expanding the Tent: Undergraduate Majors in Data Science—Invited

Section on Statistical Education, Section on Statistical Learning and Data Science, Section on Statistical Computing, SSC

Organizer(s): Ben Baumer, Smith College

Chair(s): Ben Baumer, Smith College

10:35 a.m. Dismantling Math, Stats, and CS Silos: PCMI Guidelines for Undergraduate Majors in Data Science—✦Albert Y. Kim, Smith College

10:50 a.m. Pathways Through the Major in Statistical and Data Science at Smith—✦Randi L. Garcia, Smith College

11:05 a.m. Herding Cats: Pros and Cons of a Large-Team Approach to Data Science at a Major Research University—✦David Hunter, Penn State University

11:20 a.m. Designing a Group Major in Data Science—✦Deborah Nolan, University of California, Berkeley

11:35 a.m. Disc: Joseph Blitzstein, Harvard University

11:50 a.m. Disc: Mine Cetinkaya-Rundel, Duke University

12:05 p.m. Floor Discussion

Topic Contributed Sessions 10:30 a.m.—12:20 p.m.

652 CC-West 109

■ ● Recent Innovation in Generalized Evidence Synthesis—Topic Contributed

Section on Statistics in Epidemiology, Section on Statistics in Epidemiology, International Chinese Statistical Association

Organizer(s): Jing Zhang, University of Maryland College Park

Chair(s): Qiqi Deng, Boehringer Ingelheim Pharmaceuticals

10:35 a.m. A Bayesian Hierarchical Summary Receiver Operating Characteristic Model for Network Meta-Analysis of Diagnostic Tests—✦Haitao Chu, University of Minnesota Twin Cities; Qinshu Lian, University of Minnesota; James S. Hodges, University of Minnesota

10:55 a.m. Bayesian Hierarchical Methods for Meta-Analysis Combining Randomized-Controlled and Single-Arm Studies—✦Jing Zhang, University of Maryland College Park; Chia-Wen Ko, U.S. Food and Drug Administration; Lei Nie, Division of Biometrics V, office of Biostatistics, CDER/FDA; Yong Chen, University of Pennsylvania; Ram

Tiwari, Center for Devices and Radiologica Health, FDA

11:15 a.m. **Bayesian Network Meta-Regression Models Using Heavy-Tailed Multivariate Random Effects with Covariate-Dependent Variances**—✦Ming-Hui Chen, University of Connecticut; Hao Li, University of Connecticut; Joseph G Ibrahim, University of North Carolina Chapel Hill; Sung Duk Kim, National Cancer Institute; Arvind K. Shah, MRL, Merck & Co., Inc.; Jianxin Lin, MRL, Merck & Co., Inc.; Andrew M. Tershakovec, MRL, Merck & Co., Inc.

11:35 a.m. **Marginal Meta-Analysis for Combining Multiple Randomized Clinical Trials with Rare Events**—✦Yi Huang, University of Maryland, Baltimore County; Elande Baro, US FDA; Yun-Ju Cheng, University of Maryland, Baltimore County; Guoxing Song, US FDA

11:55 a.m. Disc: Chi Song, Ohio State University

12:15 p.m. **Floor Discussion**

653 CC-West 213

■ ● Advances in Bayesian Nonparametric Modeling and Computation for Complex Data—Topic Contributed

Section on Bayesian Statistical Science, Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): Li Ma, Duke University

Chair(s): Pierpaolo De Blasi, University of Turin

10:35 a.m. **Robustness and Nonparametric Bayesian Methods**—✦Steve MacEachern, The Ohio State University

10:55 a.m. **Dependent Processes in Bayesian Nonparametric Inference**—✦Igor Pruenster, Bocconi University

11:15 a.m. **Survival Models with Compound Random Measures**—✦Fabrizio Leisen, University of Kent

11:35 a.m. **Recursive Bayesian Predictive Distributions**—✦Stephen Walker

11:55 a.m. **Floor Discussion**

654 CC-East 9

■ New Methodology Developments in Single Cell RNA-Seq—Topic Contributed

International Chinese Statistical Association, Section on Statistics in Genomics and Genetics, Caucus for Women in Statistics

Organizer(s): Zhijin Wu, Brown University

Chair(s): Zhijin Wu, Brown University

10:35 a.m. **Single-Cell ATAC-Seq Signal Extraction and Enhancement**—✦Hongkai Ji, Johns Hopkins Bloomberg School of Public Health; Zhicheng Ji, Johns Hopkins Bloomberg School of Public Health; Weiqiang Zhou, Johns Hopkins Bloomberg School of Public Health

10:55 a.m. **Missing Data and Technical Variability in Single-Cell RNA-Sequencing Experiments**—✦Stephanie Hicks, Johns Hopkins SPH

11:15 a.m. **Effects of Protocol Choices on Technical Artifacts in Single-Cell RNA-Seq Data Using a Data Generation Simulation Framework**—✦Rhonda Bacher, University of Florida

11:35 a.m. **Noise Modeling and Denoising of UMI-Based Single Cell RNA Sequencing Data**—✦Nancy Zhang, ; Mo Huang, University of Pennsylvania; Mingyao Li, University of Pennsylvania; Jingshu Wang, University of Pennsylvania

11:55 a.m. **Floor Discussion**

655 CC-West 116

■ Improving Power and Generalizability in Causal Effect Estimation Using Multicenter and Network Designs—Topic Contributed

Biometrics Section, Canadian Statistical Sciences Institute, Caucus for Women in Statistics

Organizer(s): Mireille Schnitzer, University of Montreal

Chair(s): Lawrence McCandless, Simon Fraser University

10:35 a.m. **Competing Effects of Indirect Protection and Clustering on the Power of a Cluster-Randomized Controlled Vaccine Trial**—✦Matthew Hitchings, Harvard School of Public Health

10:55 a.m. **Marginal Structural Models to Estimate the Effects of Time-Varying Treatments on Clustered Outcomes in the Presence of Interference**—✦Alisa Stephens-Shields, University of Pennsylvania; Jiwei He, US Food and Drug Administration; Marshall Joffe, University of Pennsylvania

11:15 a.m. **The Impact of PEPFAR PMTCT Funding on Reduced Infant Mortality and Improved ANC Care in Kenya: a Quasi-Experimental Evaluation**—✦Donna Spiegelman, Harvard T.H. Chan School of Public Health; Dale Barnhart, Harvard T.H Chan School of Public Health; Isaac Tsikhutsu , Walter Reed Program-Kericho, Kenya; U.S. Military HIV Research Program, Silver Spring, MD; Fredrick Sawe , Walter Reed Program-Kericho, Kenya; U.S. Military HIV Research Program, Silver Spring, MD ; Jane Muli, Walter Reed Program-Kericho, Kenya; U.S. Military HIV Research Program, Silver Spring, MD; Duncan Kirui, Walter Reed Program-Kericho, Kenya; U.S. Military HIV Research Program, Silver Spring, MD; William Sugut, Walter Reed Program-Kericho, Kenya; U.S. Military HIV Research Program, Silver Spring, MD; Nareen Abboud, Office of the U.S. Global AIDs Coordinator and Health Diplomacy; Tiffany Hamm, U.S. Military HIV Research Program, Walter Reed Army Institute of Research; Peter Coakley, U.S. Military HIV Research Program, Walter Reed Army Institute of Research; Patrick W. Hickey, U.S. Military HIV Research

Program, Walter Reed Army Institute of Research; Vanessa Wolfman, U.S. Military HIV Research Program, Walter Reed Army Institute of Research; Elizabeth Lee, U.S. Military HIV Research Program, Walter Reed Army Institute of Research

11:35 a.m. **Methodological Considerations for the Analysis of Relative Treatment Effects in Multi-Drug-Resistant Tuberculosis from Fused Observational Studies**—✦Mireille Schnitzer, University of Montreal; Andrea Benedetti, Respiratory Epidemiology and Clinical Research Unit, McGill University Health Centre; Guanbo Wang, McGill University; Arman Alam Siddique, McMaster University; Asma Bahamyirou, Université de Montréal

11:55 a.m. **On the Parameter Estimation and Modeling of Clustered Survival Data with Delayed Entry and Missing Covariates**—✦Hua Shen, University of Calgary

12:15 p.m. Floor Discussion

656 CC-West 110

■ ● Subgroup Evaluations in Advancing Drug Development—Topic Contributed

Biopharmaceutical Section, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Parfionovas Andrejus, Takeda Pharmaceuticals, Inc.

Chair(s): Jing Xu, Takeda Pharmaceuticals, Inc.

10:35 a.m. **Quantitative Assessment of Risk with Subgroup Pursuit in Clinical Trials**—✦Xinzhou Guo, University of Michigan; Xuming He, University of Michigan

10:55 a.m. **Evaluation of Treatment Effect: Beyond Traditional Subgroups**—✦Yeh-Fong Chen, US FDA

11:15 a.m. **Using Hierarchical Models to Estimate Subgroup Effects in a Clinical Trial**—✦Anna McGlothlin, Berry Consultants

11:35 a.m. **Statistical Arguments for Regulatory Negotiation on Promising Subgroup Results**—✦Ming-Xiu Hu, Nektar Therapeutics

11:55 a.m. **Understand International Differences in Treatment Effect**—✦Li Chen, Amgen

12:15 p.m. Floor Discussion

657 CC-West 204

■ Statistical Network Models for Brain Connectivity Data Analysis—Topic Contributed

Section on Statistics in Imaging, Section on Statistical Learning and Data Science

Organizer(s): Shuo Chen, University of Maryland, School of Medicine

Chair(s): Ming Wang, Pennsylvania State University

10:35 a.m. **Statistical Topology of Brain Activity Networks**—✦Victor Solo, University of New South Wales; Ben Cassidy, Columbia University

10:55 a.m. **Bi-Level Graphical Modeling for Functional Connectivity Analysis of fMRI Data**—✦Lin Zhang, University of Minnesota; Andrew DiLernia, University of Minnesota; Wei Pan, University of Minnesota

11:15 a.m. **Statistical Inference of Brain Connectivity Networks: a Network Topology Based Method**—✦Yishi Xing, ; Shuo Chen, University of Maryland, School of Medicine

11:35 a.m. **Bayesian Integrative Analysis of Brain Functional Networks Incorporating Anatomical Knowledge**—✦Suprateek Kundu, Emory University Rollins School of Public Health; Ixavier Higgins, Rollins School of Public Health-Emory University; Ying Guo, Emory University

11:55 a.m. **Bayesian Network-On-Scalar Regression**—✦Jian Kang, University of Michigan

12:15 p.m. Floor Discussion

658 CC-West 122

■ ● Recent Statistical Advances in Genomic and Genetic Data Analysis—Topic Contributed

Biometrics Section

Organizer(s): Minsun Song, Sookmyung Women's University

Chair(s): Minsun Song, Sookmyung Women's University

10:35 a.m. **Heritability Informed Power Optimization (HIPO) Leads to Enhanced Detection of Genetic Associations Across Multiple Traits**—✦Guanghao Qi, Johns Hopkins University; Nilanjan Chatterjee, Johns Hopkins University

10:55 a.m. **A Statistical Framework for Cross-Tissue Transcriptome-Wide Association Analysis**—✦Yiming Hu, Yale University

11:15 a.m. **A Likelihood Ratio Test for Gene (G)-Environment (E) Interaction Based on the Trend Effect of a Genotype Under an Additive Risk Model Using the G-E Independence Assumption**—✦Summer Han, Stanford University; Nilanjan Chatterjee, Johns Hopkins University

11:35 a.m. **A Mixed-Effects Model for Powerful Association Tests in Integrative Functional Genomics**—✦Yu-Ru Su, Fred Hutchinson Cancer Research Center; Li Hsu, Fred Hutchinson Cancer Research Center, USA; Chongzhi Di, Fred Hutchinson Cancer Research Center

11:55 a.m. **Detection of Signal Regions in Whole Genome Genotyping and Sequencing Association Studies Using Scan Statistics**—✦ZILIN LI, Harvard T.H. School of Public Health; Xihong Lin, Harvard University

12:15 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

659 CC-West 121

■ ● Adaptive Dose Individualization—Topic Contributed

Statistics and Pharmacometrics Interest Group, Biopharmaceutical Section

Organizer(s): Maha C Karnoub, Celgene

Chair(s): Maha C Karnoub, Celgene

10:35 a.m. Bayesian Adaptive Dosing: Tailoring Patient Exposure Reduces Therapeutic Failures—✦Diane Mould, Projections Research, Inc.

10:55 a.m. Individualized Adaptive Dose-Response Modeling in Multiple Myeloma: Potential to Improve Patient Care—✦Dean Bottino, Takeda Pharmaceuticals U.S.A.

11:15 a.m. Individualized Dosing Sequences in Dynamic Precision Medicine for Cancer—✦Robert Beckman, Georgetown University

11:35 a.m. Disc: Simon Zhou, Celgene

11:55 a.m. Disc: Laura L. Fernandes, U.S. Food and Drug Administration

12:15 p.m. Floor Discussion

660 CC-East 17

■ Shrinkage Methods for Analyzing Complex Business Data—Topic Contributed

Business and Economic Statistics Section

Organizer(s): Ines Wilms, Cornell University

Chair(s): David Matteson, Cornell University

10:35 a.m. High-Dimensional Variable Selection When Features Are Sparse—✦Jacob Bien, University of Southern California; Xiaohan Yan, Cornell University

10:55 a.m. Using Shrinkage to Detect Changes in Variance in Complex Business Data—✦Rebecca Killick, Lancaster University; Jamie-Leigh Chapman, Lancaster University; Idris Eckley, Lancaster University

11:15 a.m. Fresh Ideas for Tuning Parameter Calibration—✦Johannes Lederer, Ruhr-University Bochum

11:35 a.m. Sparse Multi-Class Vector AutoRegressive Models—✦Ines Wilms, KU Leuven; Christophe Croux, EDHEC Business School; Luca Barbaglia, KU Leuven

11:55 a.m. Floor Discussion

661 CC-West 222

■ ● The Climate Extremes Program at SAMSI—Topic Contributed

Section on Statistics and the Environment

Organizer(s): Whitney Huang, Statistical and Applied Mathematical Sciences Institute

Chair(s): Brian Reich, North Carolina State University

10:35 a.m. A Data-Retaining Method for Tail Estimation—✦Erika Cunningham, Duke University

10:55 a.m. Some Thoughts on Joint Probability Method (JPM) for Estimating Storm Surges—✦Whitney Huang, Statistical and Applied Mathematical Sciences Institute

11:15 a.m. Characterizing Precipitation Extremes in the US Gulf Coast Through the Use of a Multivariate Spatial Hierarchical Model—✦Brook Russell, Clemson University; Mark Risser, Lawrence Berkeley National Laboratory; Kenneth Kunkel, North Carolina State University; Richard Smith, Statistical Applied Mathematical Sciences Institute

11:35 a.m. Sub-Asymptotic Models for Spatial Extremes Using Random Effects—✦Benjamin Shaby, Penn State University

11:50 a.m. Disc: Richard Smith, Statistical Applied Mathematical Sciences Institute

12:05 p.m. Floor Discussion

662 CC-West 205

■ ● Statistical Challenges in Combining Survey and Administrative Data—Topic Contributed

Survey Research Methods Section

Organizer(s): Lingzhou Xue, Penn State University and National Institute of Statistical Sciences

Chair(s): Joel Dubin, University of Waterloo

10:35 a.m. Combining Survey and Administrative Data to Produce Official Statistics—✦Andreea Erciulescu, National Institute of Statistical Sciences; Nathan Cruze, USDA National Agricultural Statistics Service; Habtamu Benecha, USDA National Agricultural Statistics Service; Valbona Bejleri, USDA National Agricultural Statistics Service; Balgobin Nandram, Worcester Polytechnic Institute

10:55 a.m. Promises and Challenges of Data Integration—✦Mauricio Sadinle, University of Washington

11:15 a.m. Statistical Challenges in Linking a Retail Gasoline Price Survey with Commercial Data—✦Maura Bardos, Energy Information Administration; Amerine Woodyard, Energy Information Administration; Jeramiah Yeksavich, Energy Information Administration

11:35 a.m. Calibrating to Estimated Totals: Lessons from the American Teacher Panel—✦Michael Robbins, RAND Corporation

11:55 a.m. Floor Discussion

663 CC-East 19

■ ● Topics in Large-Scale Online Experimentation—Topic Contributed

Section on Statistical Consulting, Business and Economic Statistics Section, Quality and Productivity Section

Organizer(s): W. Duncan Wadsworth, Microsoft

Chair(s): W. Duncan Wadsworth, Microsoft

10:35 a.m. Novelty/Primacy Effect Detection in Randomized Online Controlled Experiments—✦Somit Gupta, Microsoft; Jiannan Lu, Microsoft; Alex Deng, Microsoft Corporation

10:55 a.m. Large-Scale Online Experimentation with Quantile Metrics—✦Min Liu, LinkedIn Corp.; Xiaohui Sun, LinkedIn; Maneesh Varshney, LinkedIn Corp.; Ya Xu, LinkedIn

11:15 a.m. Advances in Measuring User Learning—✦Niall Cardin, Google Inc.; Henning Hohnhold, Waymo

11:35 a.m. A Decision-Theoretic Approach to A/B Testing—✦David Goldberg, eBay; James Johndrow, Stanford University

11:55 a.m. Mitigating Test-Control Interference in Marketplace Experimentation—✦Duncan Gilchrist, Uber Technologies

12:15 p.m. Floor Discussion

Topic Contributed Panels 10:30 a.m.—12:20 p.m.

664 CC-West 118

Using an Estimand Approach in Your Next Clinical Trial—Topic Contributed

Biopharmaceutical Section

Organizer(s): Ye Tan, Pfizer Inc.

Chair(s): Steven Gilbert, Pfizer

Panelists: ✦Ralph D'Agostino, Boston University

✦Frank Bretz, Novartis Pharma AG

✦Ye Tan, Pfizer Inc.

✦Douglas S. Lee, Pfizer

✦Jared Christensen, Pfizer

12:10 p.m. Floor Discussion

665 CC-West 210

■ ● Big Data: Professional and Ethical Challenges from the Perspective of Actuaries, Statisticians and Data Scientists—Topic Contributed

Section on Risk Analysis, American Academy of Actuaries, General Methodology

Organizer(s): Steve Jackson, American Academy of Actuaries

Chair(s): Dorothy Andrews, Merlinos & Associates

Panelists: ✦Michael Walker, Data Science Association

✦Edward Frees, University of Wisconsin

✦Jim Guszcza, Deloitte US

✦Victoria Stodden, University of Illinois

12:10 p.m. Floor Discussion

Contributed Sessions 10:30 a.m.—12:20 p.m.

666 CC-West 214

Bayesian Penalized Regression Models—Contributed

Section on Bayesian Statistical Science

Chair(s): Christopher Franck, Virginia Tech

10:35 a.m. Bayesian Sensitivity Analysis to Unmeasured Confounding for Misclassified Data—✦Joon Jin Song, Baylor University; Qi Zhou, Baylor University; Yoo-Mi Chin, Baylor University; James Stamey, Baylor University

10:50 a.m. Bayesian Logistic Regression Model for Sub-Areas—✦Lu Chen, Worcester Polytechnic Institute; Balgobin Nandram, Worcester Polytechnic Institute

11:05 a.m. Bayesian Analysis with Orthogonal Matrix Parameters—✦Michael Jauch, Duke University; Peter Hoff, Duke University; David B Dunson, Duke University

11:20 a.m. Bayesian Hypothesis Tests with Diffuse Priors: Can We Have Our Cake and Eat it Too?—✦John T Ormerod, University of Sydney; Michael Stewart, University of Sydney; Weichang Yu, University of Sydney; Sarah Romanes, The University of Sydney

11:35 a.m. Bayesian Square Root Laso—✦Mohamed Abdelkader Abba, University Of Arkansas

11:50 a.m. Approximate Bayesian Forecasting—✦Brendan McCabe, University of Liverpool

12:05 p.m. Floor Discussion

667 CC-West 218

■ Statistics, Science, and Society—Contributed

IMS

Chair(s): Ji-Ping Wang, Northwestern University

10:35 a.m. Branching Processes in Generalized Autoregressive Conditional Environments with Applications to Virus Outbreaks—✦Irene Hueter, Columbia University

10:50 a.m. Simulation of Rainwater Harvesting and Demand-Side Water Conservation for Hospitals—✦Lawrence Fulton, Texas State University; Lana Ivanitskaya, Central Michigan University; Dmitry A. Erofeev, Central Michigan University

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

11:05 a.m. Methods for Automatic Groove Identification in 3D Bullet Land Scans—✦Kiegan Rice, ; Heike Hofmann, Iowa State University; Ulrike Genschel, Iowa State University

11:20 a.m. A Modified Two-Stage Approach to the Interpretation of Forensic Evidence—✦Cami M. Fuglsby, South Dakota State University; Christopher P. Saunders, South Dakota State University; Danica Ommen, Iowa State University; JoAnn Buscaglia, FBI Laboratory, Counterterrorism & Forensic Science Research Unit

11:35 a.m. Classification of Healthcare Data: When Scarcity of Labeled Data Is the Norm Semi-Supervised Learning Methods Can Come to the Rescue—✦Didem Egemen, The George Washington University; Paulo Macedo, Integrity Management Services Inc.; Sewit Araia, Integrity Management Services Inc.

11:50 a.m. Online Non-Negative Tensor Decomposition with Application to Kidney Paired Donation—✦Mathieu Bray, University of Michigan; Peter X.-K. Song, University of Michigan

12:05 p.m. A Model-Centric Approach to Scientific Progress and Understanding Reproducibility of Scientific Claims—✦Erkan Buzbas, University of Idaho; Berna Devezer, University of Idaho; Bert Baumgaertner, University of Idaho; Luis Gustavo Nardin, Brandenburg University of Technology Cottbus - Senftenberg

668 CC-West 112

■ ● Best Practices for Programming and Analysis—Contributed

Section for Statistical Programmers and Analysts, Section on Statistical Computing

Chair(s): Ying Su,

10:35 a.m. Adapr: An R Package for an Accountable Data Analysis Process—✦Jonathan Gelfond, University of Texas Health San Antonio; Martin Goros, UT Health San Antonio; Brian Hernandez, UT Health San Antonio; Alex Bokov, UT Health San Antonio

10:50 a.m. Three Little Models and the Big Bad Data: a Three-Model Approach to Causal Analysis with Observational Clinical Data—✦Kayla Nowak, RTI International; Tracy Nolen, RTI International

11:05 a.m. Detoxing Toxicity Analysis: Creating Analysis-Ready One-Proc Away ADLB—✦Ilya Krivelevich, Eisai; Ran Xie, Eisai Inc; Simon Lin, Eisai Inc

11:20 a.m. Leveraging "Medium-Sized" Data for Statistical Inference and Model Estimation of Data Gaps in International Energy Statistics Using R—✦Glendon Haynes, Energy Information Administration

11:35 a.m. Bayesian Reversible-Jump Sequential Variable Selection Methodology for High-Dimensional Arrays of Paired Predictors, with Application in Assessing Added-Value in Proteomics Data.—✦Bart Mertens, Leiden University Medical Centre; Alexia Kakourou, Leiden University Medical Centre

11:50 a.m. Statistical Quantification of Colocalization via Optimal Transport—✦Carla Tameling, Department for Mathematics and Computer Science; Axel Munk, University of Goettingen; Stefan Jakobs, Max Planck Institute for Biophysical Chemistry, Goettingen; Stefan Stoldt, Max Planck Institute for Biophysical Chemistry, Goettingen

12:05 p.m. Automation of Multiprocessor Optimization in SAFAL—✦Babubhai Shah, SAFAL Institute Inc.

669 CC-West 219

● New Nonparametric Statistical Methods for High-Dimensional Data—Contributed

Section on Nonparametric Statistics

Chair(s): Robert L. Wood, Resonate & Wichita State University

10:35 a.m. Covariate Information for Sure Independence Feature Screening in Ultrahigh- Dimensional Supervised Problems—✦Debmalya Nandy, The Pennsylvania State University; Francesca Chiaromonte, The Pennsylvania State University; Runze Li, The Pennsylvania State University

10:50 a.m. Graphical Investigation of the Geometry of High and Infinite Dimensional Data—✦Wolfgang Polonik, University of California, Davis; Gabriel Chandler, Pomona College

11:05 a.m. A Divide and Conquer Strategy for High-Dimensional Bayesian Factor Models—✦Gautam Sabnis, University of Michigan; Debdeep Pati, Texas A&M University; Barbara Engelhardt, Princeton University; Natesh Pillai, Harvard University

11:20 a.m. Sequentially Weighted Nearest Neighbour Classifier—✦Mehdi Soleymani, The University of Auckland

11:35 a.m. Bayesian Ising Sparse Nonparametric Model—✦Inyoung Kim, Virginia Tech; Zaili Fang, Virginia Tech; Byung-Jun Kim, Virginia Polytechnic Inst. & State Univ.

11:50 a.m. A Smooth Simultaneous Confidence Band for Correlation Curve—✦Yuanyuan Zhang, Tsinghua University; Lijian Yang, Tsinghua University

12:05 p.m. Floor Discussion

670 CC-East 14

■ ● Advances in Statistical Process Control—Contributed

Quality and Productivity Section

Chair(s): Ronald Fricker, Virginia Tech

10:35 a.m. SOME EWMA SCHEMES for SIMULTANEOUS MONITORING of UNKNOWN MEAN and VARIANCE of a NORMALLY DISTRIBUTED PROCESS—✦Ridwan Sanusi, City Univ of Hong Kong; AMITAVA MUKHERJEE, INDIAN INSTITUTE OF MANAGEMENT ; Min Xie, City University of Hong Kong

10:50 a.m. An Average Loss Control Chart for a Process with Skewed Distribution—✦Su-Fen Yang, National Chengchi University; Shan-Wen Lu, National Chengchi University

11:05 a.m. Shrinkage Estimates of Covariance Matrices to Improve the Performance of Multivariate Exponentially Weighted Moving Average Control Charts—✦Nurudeen A Adegoke, Institute of Natural and Mathematical Sciences (INMS), Massey University New Zealand; Adam N.H. Smith, Institute of Natural and Mathematical Sciences (INMS), Massey University New Zealand; Marti J Anderson , New Zealand Institute for Advanced Study, Massey University, New Zealand; Matthew D.M. Pawley, Institute of Natural and Mathematical Sciences (INMS), Massey University New Zealand

11:20 a.m. Xbar Chart with Estimated Parameters: New Formulas to Guarantee a Conditional In-Control Performance—✦Felipe Jardim, Pontifical Catholic University of Rio De Janeiro; Subhabrata Chakraborti, University of Alabama; Eugenio Kahn Epprecht, Pontifical Catholic University of Rio de Janeiro

11:35 a.m. Shewhart-Type Charts in Some Nonstandard Situations: Phase I and Phase II—✦Yuhui Yao, University of Alabama; Subhabrata Chakraborti, University of Alabama

11:50 a.m. Adjustment for Phase II S^2 Chart Control Limits Based on Tolerance Intervals—✦Martin Guillermo Cornejo Sarmiento, Pontifical Catholic University of Rio de Janeiro; Subhabrata Chakraborti, University of Alabama; Eugenio Kahn Epprecht, Pontifical Catholic University of Rio de Janeiro

12:05 p.m. Semiparametric Profile Monitoring Control Chart for Phase I via Mixed Residuals—✦Abdel-Salam G Abdel-Salam, Qatar University

671 CC-West 304/305

■ ● Network Analysis, Text Mining and Bayesian Functional Clustering: Data Visualization and Other Considerations—Contributed

Section on Statistical Graphics

Chair(s): Suchitrita Rathmann, Eli Lilly & Co

10:35 a.m. Model Visualization Techniques for a Social Network Model—✦Sam Tyner, Iowa State University; Heike Hofmann, Iowa State University

10:50 a.m. A Framework of Change Detection for Dynamic Networks—✦Fuchen Liu, Carnegie Mellon University

11:05 a.m. TEXT MINING VISUALIZATIONS—✦Kellie Keeling, University of Denver

11:20 a.m. User-Guided Topic Modeling Through Interactive Visualization—✦Nathan Wycoff, Virginia Tech; Scotland Leman, Virginia Tech; Ian Crandell, Virginia Tech; Peter Hauck, Virginia Tech; Michelle Dowling, Virginia Tech

11:35 a.m. Bayesian Functional Clustering for Brain Data—✦Hao Shen, Northern Illinois University; Duchwan Ryu, Northern Illinois University

11:50 a.m. Article Screening for Meta-Analysis—✦Jason Wang, UCLA; Robert Weiss, UCLA

12:05 p.m. Floor Discussion

672 CC-West 115

Methods for Infectious Disease Epidemiology—Contributed

Section on Statistics in Epidemiology

Chair(s): Tao Wang, Albert Einstein College of Medicine

10:35 a.m. Pairwise Accelerated Failure Time Models for Infectious Disease Transmission Within and Between Households—✦Yushuf Sharker, Yale University; Eben Kenah, The Ohio State University School of Public Health

10:50 a.m. Are Zero-Modified Models the Panacea for Epidemiological Data with Excess Zeroes?—✦Ali Arab, Georgetown University; Frederic Mortier, CIRAD, UPR Forests and Societies/Forests and Societies, Univ Montpellier, CIRAD

11:05 a.m. Model Choice and Future Prediction Accuracy in Time Series for Disease Incidence—✦Reagan Spindler, Hope College; Yew-Meng Koh, Hope College

11:20 a.m. Modeling Social Contact Networks in Niakhar, Senegal—✦Gail Potter, The Emmes Corporation; Jimmy Wong, FDA; Jonathan Sugimoto, Fred Hutch; Aldiouma Diallo, IRD; John Chris Victor , PATH; Kathleen Neuzil, University of Maryland ; M Elizabeth Halloran, Fred Hutch , University of Washington

11:35 a.m. A Bayesian Approach to Sequential Analysis in Post-Licensure Vaccine Safety Surveillance—✦Rongxia Li, Centers for Disease Control and Prevention

11:50 a.m. Trends in Hepatitis B Birth Dose Vaccination Coverage Disparities by Birth Year Cohort for Children in the United States, 2005-2014—✦Zhen Zhao, CDC; Holly A Hill, CDC

12:05 p.m. A Unified Probability Model for Pathogenic Etiology of Infectious Diseases—✦Nong Shang, CDC

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

673 CC-West 120

● Clinical Trial Design- 8—Contributed

Biopharmaceutical Section

Chair(s): John Pesko,

10:35 a.m. A Simulation Study Comparing MCP-Mod and a Model-Based Approach in Phase 2a Clinical Trials—✦Hongtao Zhang, ; Alan Hartford, AbbVie Inc

10:50 a.m. On Sample Size Requirement for Analytical Similarity Assessment—✦Victoria Chang, AbbVie; Yi Zhao, Statistics Collaborative; Shein-Chung Chow, Food and Drug Administration

11:05 a.m. Bayesian Predictive Probability for Interim Analysis—✦Dung-Tsa Chen, Moffitt Cancer Center

11:20 a.m. Periodic Benefit-Risk Assessment Using Bayesian Stochastic Multi-Criteria Acceptability Analysis—✦Sammy Yuan, Merck; Kan Li, University of Texas Health Science Center; Bill Wang, Merck

11:35 a.m. On Evaluation of Consistency in Multi-Regional Clinical Trials—✦Lisa Ying, ; Fuyu Song, Center for Food and Drug Inspection, cFDA; Shein-Chung Chow, Food and Drug Administration; Na Zeng, National Clinical Research Center for Digestive Diseases, Beijing Friendship Hospital; Jiayin Zheng, Fred Hutchinson Cancer Research Center; Xiaodong Li, Bristol-Myers Squibb Company; David Henry, Bristol-Myers Squibb Company; Venkat Sethuraman, ZS Associates

11:50 a.m. Selecting Among Treatments with Two Bernoulli Endpoints—✦Elena M Buzaianu, University of North Florida; Pinyuen Chen, Syracuse University; Lifang Hsu, Le Moyne College

12:05 p.m. Floor Discussion

674 CC-West 119

● Adaptive Design - 3—Contributed

Biopharmaceutical Section

Chair(s): Ying Grace Li, Eli Lilly and Company

10:35 a.m. A Bayesian Adaptive Phase 1/2 Design of Cisplatin and Cabazitaxel in Prostate Cancer with Visceral Metastasis—✦Mourad Tighiouart, Cedars-Sinai Medical Center

10:50 a.m. Adaptive Bayesian Interval-Based Oncology Dose Finding Design with Quasi-Continuous Toxicity Model—Dan Zhao, University of Illinois at Chicago; Jian Zhu, Takeda; Eric Westin, ImmunoGen; ✦Ling Wang, Takeda

11:05 a.m. Bias-Corrected Estimation of Treatment Effects in Biomarker-Based Adaptive Subgroup Analysis: New Approach Based on Randomized Tests with Smooth Rejection Function—✦Kiichiro Toyoizumi, Shionogi Inc.; Shigeyuki Matsui, Nagoya University

11:20 a.m. Practical Considerations of Subgroups Quantification, Selection and Adaptive Enrichment in Confirmatory Trials—✦Jianchang Lin, Takeda Pharmaceuticals; Rachael Liu, Takeda Pharmaceuticals ; Veronica Bunn, Florida State University

11:35 a.m. An Adaptive Dose Selection Case Study: Statistical Methods and Operational Considerations—✦Adam Hamm, Cytel, Inc.

11:50 a.m. Statistical Monitoring of Semi-Competing Risk Outcomes in Clinical Trials—✦Toshi Hamasaki, ; Scott Evans, Harvard University; Tomoyuki Sugimoto, Kagoshima University; Koko Asakura, National Cerebral and Cardiovascular Center; Susan Halabi, Duke University

12:05 p.m. BOIN-ET: Bayesian Optimal Interval Design for Dose Finding Based on Both Efficacy and Toxicity Outcomes—✦Kentaro Takeda, Astellas Pharma Global Development, Inc.; Masataka Taguri, Yokohama City University; Satoshi Morita, Kyoto University

675 CC-West 208

Practical Aspects of Survey Design and Analysis—Contributed

Survey Research Methods Section

Chair(s): Bella Struminskaya,

10:35 a.m. Ad-Hoc Calibration for Rounding Rules with Nonlinear Benchmarks—✦Luca Sartore, National Institute of Statistical Sciences; Nathan Cruze, USDA National Agricultural Statistics Service; Habtamu Benecha, USDA National Agricultural Statistics Service; Andreea Erciulescu, National Institute of Statistical Sciences; Kelly Toppin, National Agricultural Statistics Service; Clifford Spiegelman, Texas A&M University

10:50 a.m. TRUMP in Power Supports Five Family Members—✦Sarjinder Singh, Texas A&M University-Kingsville; Stephen A Sedory, Texas A&M University-Kingsville

11:05 a.m. Weighting on Reaction Time - Measures Beyond Liking—✦Shankang Qu, PepsiCo

11:20 a.m. Using Incentives to Encourage Survey Participation—✦Kymn Kochanek, NORC at the University of Chicago; Vicki Wilmer, NORC at the University of Chicago; Lauren Seward, NORC at the University of Chicago

11:35 a.m. First Truly Reproducible Nationwide Survey on Substance Use in Brazil: Survey Design and Weighting—✦Pedro Luis do Nascimento Silva, IBGE-ENCE; Mauricio Teixeira Leite de Vasconcellos, IBGE-ENCE; Raquel B De Boni, FIOCRUZ; Francisco Inacio Pinkusfeld Monteiro Bastos, FIOCRUZ; Neilane Bertoni dos Reis, Instituto Nacional de C,ncer; Carolina Fausto de Souza Coutinho, FIOCRUZ; Jurema Corría da Mota, FIOCRUZ; Lidiane da Silveira Gouvea Toledo, FIOCRUZ

11:50 a.m. Calibrating Forecasts to Volatile Time Series—✦Janice Lent, U.S. Energy Information Administration

12:05 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

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■ Analysis and Reporting: Benefit-Risk and Robust Models—Contributed

Section on Medical Devices and Diagnostics

Chair(s): Kyungsook Kim, FDA

10:35 a.m. Real Data Applications of Learning Curves in Cardiac Devices and Procedures—✦Usha Govindarajulu, SUNY Downstate School of Public Health; David Goldfarb, Montfiore Medical Center; Frederic Resnic, Lahey Clinic

10:50 a.m. Screening for Depression in Arthritis Populations in Self-Reported Questionnaire—✦Jinxiang Hu, University of Kansas Medical Center

11:05 a.m. Development of Robust Measurement of Glucose Variability in Patients with Diabetes—✦Nicholas Hein, University of Nebraska Medical Center; Christopher Wichman, University of Nebraska Medical Center; Lynette Smith, University of Nebraska Medical Center; Jennifer Merickel, University of Nebraska Medical Center; Andjela Drincic, University of Nebraska Medical Center; Matthew Rizzo, University of Nebraska Medical Center; Cyrus Desouza, University of Nebraska Medical Center

11:20 a.m. Nonparametric Inference for the Coefficient of Variation—✦Dongliang Wang, SUNY Upstate Medical University; Margaret Formica , SUNY Upstate Medical University; Song Liu, Roswell Park Cancer Institute

11:35 a.m. Improved Modeling of Imbalanced Data for Dietary Lapse Prediction—✦Fengqing Zhang, Drexel University; Tinashe M Tapera , Drexel University; Stephanie P Goldstein, Drexel University; Evan Forman, Drexel University

11:50 a.m. Targeted Learning for Variable Importance in Precision Medicine—✦Yue You, Division of Biostatistics, University of California, Berkeley; Alan Hubbard, Division of Biostatistics, University of California, Berkeley; Rachael Callcut, Zuckerberg San Francisco General Hospital, University of California; Lucy Kornblith, Zuckerberg San Francisco General Hospital, UCSF; Sabrinah Christie, Zuckerberg San Francisco General Hospital, UCSF

12:05 p.m. A Bayesian Approach to Benefit-Risk Assessment for Ophthalmic Devices—✦Chul Ahn, FDA-CDRH

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Variable Selection Methods in Statistical Learning—Contributed

Section on Statistical Learning and Data Science, SSC

Chair(s): Hyung Park, Columbia University

10:35 a.m. Sure Joint Ranking and Screening in Ultrahigh Dimensional Linear Regression Models—✦Songshan Yang,

10:50 a.m. Variables and Interactions Generation for Logistic Regression Model via TreeNet and Association Rules—✦Pannapa Changpetch,

11:05 a.m. Estimating the Error Variance in a High-Dimensional Linear Model—✦Guo Yu, Cornell University; Jacob Bien, University of Southern California

11:20 a.m. Cmenet: a New Method for Bi-Level Variable Selection of Conditional Main Effects—✦Simon Mak, Georgia Institute of Technology; C. F. Jeff Wu, Georgia Institute of Technology

11:35 a.m. Subsampling for Feature Selection in Large Regression Data—✦Yiying Fan, Cleveland State University

11:50 a.m. Semi-Supervised Learning for Joint Association and Classification Analysis of Multimodal Data—✦Yunfeng Zhang, Texas A&M University; Irina Gaynanova, Texas A&M University

12:05 p.m. Linear Hypothesis Testing for High-Dimensional Generalized Linear Models—✦Chengchun Shi, North Carolina State University; Rui Song, North Carolina State University; Runze Li, Penn State University

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New Methods in Spatial and Spatiotemporal Modeling and Assessment—Contributed

Section on Statistics and the Environment

Chair(s): Lynne Seymour, University of Georgia

10:35 a.m. Spatial Cluster Detection of Regression Coefficients in a Mixed Effect Model—✦Junho Lee, King Abdullah University of Science and Technology; Ying Sun, KAUST; Howard Chang, Emory University

10:50 a.m. Parametric Variogram Matrices Spanning from Weak to Intrinsic Stationarity—✦Wanfang Chen, KAUST; Marc G Genton, King Abdullah University of Science and Technology

11:05 a.m. A Bayesian Hierarchical Model for Continental-Scale Prediction of Water Quality in US Lakes—✦Meridith Bartley, Penn State University; Ephraim Hanks, The Pennsylvania State University

11:20 a.m. Penalized Local Polynomial Regression for Spatial Data—✦Wu Wang, King Abdullah University of Science and Technology; Ying Sun, KAUST

11:35 a.m. Distance Correlation as a Measure for Dependence of Distance Matrices with Complex Spatial Patterns: An Alternative to Mantel Test—✦Deniz Yenigun, Istanbul Bilgi University; Maria Rizzo, Bowling Green State University

11:50 a.m. Fast Maximum Likelihood Inference for Spatial Generalized Linear Mixed Models—✦Yawen Guan, The Statistical and Applied Mathematical Sciences Institute; Murali Haran, Penn State University

12:05 p.m. Floor Discussion

● Themed Session ■ Applied Session ✦ Presenter CC-West—Convention Centre, West Building CC-East—Convention Centre, East Building

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Variable Selection and Prediction Models for Genomic Data—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Andriy Derkach, National Cancer Institute

10:35 a.m. A New Statistical Method for Genome-Scale Mutual Exclusivity Analysis of Tumor Mutations—✦Chi Wang, University of Kentucky; Sisheng Liu, Fred Hutchinson Cancer Research Center; Jinpeng Liu, Markey Cancer Center, University of Kentucky; Thilakam Murali, University of Kentucky; Tingting Zhai, University of Kentucky; Li Chen, University of Kentucky; Arnold Stromberg, University of Kentucky; Hunter Moseley, University of Kentucky

10:50 a.m. MDR with P Risk Scores Per Person with Application to Alzheimer's Disease Data—✦Ye Li, University of Kentucky; Richard Charnigo, University of Kentucky

11:05 a.m. A Kernel-Based Neural Network for High-Dimensional Genetic Risk Prediction Analysis—✦Xiaoxi Shen, ; Xiaoran Tong, Michigan State University; Qing Lu, Michigan State University

11:20 a.m. Developing Polygenic Risk Prediction Models for Cancer Subtypes Incorporating Multivariate Disease Characteristics—✦Haoyu Zhang, Johns Hopkins University; Thomas U. Ahearn, National Cancer Institute; Ni Zhao, Johns Hopkins University; Montserrat Garcìa-Closas, National Cancer Institute; Nilanjan Chatterjee, Johns Hopkins University

11:35 a.m. Survival Analysis of Recurrent Events on Prostate Cancer: Facts from Cancer Genome—✦Munni Begum, Ball State University

11:50 a.m. SMUT: Multi-SNP Mediation Intersection-Union Test—✦Wujuan Zhong, University of North Carolina, Chapel Hill; Cassandra Spracklen, University of North Carolina, Chapel Hill; Karen Mohlke, University of North Carolina, Chapel Hill; Xiaojing Zheng, University of North Carolina, Chapel Hill; Jason P Fine, University of North Carolina at Chapel Hill; Yun Li, University of North Carolina at Chapel Hill

12:05 p.m. A General Framework for Variable Selection in Linear Mixed Models with Applications to Genetic Studies with Structured Populations—✦Sahir Rai Bhatnagar, McGill University; Karim Oualkacha, Universite Du Quebec a Montreal; Yi Yang, McGill University; Celia M.T. Greenwood, Lady Davis Research Institute, McGill University

680 CC-West 209

Imputation and Analysis of Missing Survey Data—Contributed

Survey Research Methods Section

Chair(s): Katherine McLaughlin, Oregon State University

10:35 a.m. Relaxation of Ignorability and Independence Assumptions Under the Availability of Auxiliary Moment Conditions: Application to Data Fusion—✦Keisuke Takahata, Keio University; Takahiro Hoshino, Keio University

10:50 a.m. Simultaneous Edit and Imputation for Household Data with Structural Zeros—✦Olanrewaju Michael Akande, Duke University; Jerome P. Reiter, Duke University; Andrés Barrientos, Duke University

11:05 a.m. Multiple Imputation of Non-Ignorable and Hierarchical Missing Data—✦Angelina Hammon,

11:20 a.m. "Robust-Squared" Imputation Models Using BART—✦Yaoyuan Tan, University of Michigan; Carol A.C. Flannagan, University of Michigan, Transport Research Institute; Michael Elliott, University of Michigan

11:35 a.m. Identification of Missing Mechanism in an Incomplete Two-Way Contingency Table with Two Supplemental Margins—✦Saebom Jeon, Mokwon University

11:50 a.m. Simplifying the Noninterview Adjustment Used in Weighting the American Community Survey Housing Unit Sample—✦Evan B. Gutentag, U.S. Census Bureau; Edward C. Castro Jr., U.S. Census Bureau; Mark E. Asiala, U.S. Census Bureau

12:05 p.m. Evaluation of Patterns of Missing Prices in CPI Data—✦Harold Gomes, U.S. Bureau of Labor Statistics